THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—17TH YEAR. SYDNEY, SATURDAY, AUGUST 16, 1930. No. 7.

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An Address.[1]

By H. GILBERT, F.R.C.S.,

Retiring President of the South Australian Branch of the British Medical Association.

WHEN it was first suggested some three years ago that I should be the next to occupy the presidential chair, my chief misgiving was the responsibility of the retiring address, realizing as I did, that, having filled the rôle of general practitioner for more than twenty years, I would have no special message to give you, but could deal only in generalities which it might be difficult to imbue with even a passing interest.

Experiences in Practice.

During my search for a subject on which to address you, I received a very strong suggestion that some of the many mistakes I must have made during nearly a quarter of a century of practice should be worth recording. A full confession of my numerous failures might suggest that I have failed to profit from many years of happy association with my fellow members in the profession, from numbers of whom I have been privileged to learn a great deal, and to them I owe a deep debt of gratitude.

But a brief account of some of my mistakes and the difficulties I have been faced with, may possibly prove of value to those recently embarked on practice, and may also produce a reminiscent vein not altogether unwelcome in those of an older generation.

I well remember my first experience with pituitary extract as a hurry-up to labour, when I administered it in a case in which I failed to recognize a persistent occipito-posterior position. There was no fatality, but for a short time it looked as if the uterus were bound to rupture.

[1] Delivered at the annual meeting of the South Australian Branch of the British Medical Association on June 25, 1930.

On another occasion I gave it to a patient with undiagnosed conjoined twins. Naturally the delivery was not expedited and was completed only with difficulty under deep anæsthesia. At a previous confinement single labour was complete twelve minutes after the dose was administered and both the patient and I anticipated a similarly brilliant result on this later occasion.

One other unfortunate experience with pituitary extract was due to its too superficial administration when given hurriedly in a case of severe *post partum* hæmorrhage. Recovery from the immediate disability was rapid, but it was many, many months before the slough which occurred in the skin of the forearm separated and healing occurred. Quite recently the patient asked me if I remembered the bad arm I gave her about fifteen years ago!

When "Salvarsan" first came on the market, my partner and I had several patients with late syphilis under treatment and we decided to give the new drug a thorough trial. The results were amazing so far as the clearing up of old lesions such as gummata, rupia *et cetera*, but the third patient who was treated, very nearly died, presumably from my ignorance with regard to the necessity for using freshly distilled water in the preparation of the drug for injection. Care in this respect with other cases avoided any further trouble, but I was never happy with the drug again and was relieved when the less toxic preparations became available; although I have lately heard of a fatality occurring after the use of one of these supposedly safer arsenical preparations.

The results of incomplete examination have been brought home to me very forcibly on several occasions.

One patient was under treatment for a severe brachial neuritis and I gave her an anæsthetic to have a number of septic teeth removed. She shortly developed septic pneumonia and empyema and died of coma. My first examination of the urine was made just prior to opening the empyema when the urine was found to be loaded with sugar. An intense vulvitis was also discovered, suggesting that sugar had been present in large quantities for a long time.

It is a curious fact that, put on guard as I was by this experience, I have never since met with a case of brachial neuritis (and I have seen many) in which sugar has been present in the urine.

On another occasion a child of about nine years of age was brought to me for treatment of an allegedly painful hernia, the history being that a short while before he had run against a standard tap, striking his groin. The hernia was then discovered and he had complained of pain in the groin ever since. I promised to relieve the pain by curing the hernia. Not at all. The pain persisted and later proved to be due to early tuberculosis of the hip joint, all the classical signs being easily elicited.

One other case bearing on the same subject is worth referring to on account of its extreme rarity.

A woman, aged sixty-seven, who had been under my care for some years with ankylosis of the left hip joint, came in complaining of feeling queer in the head as the result of a fall from a tramcar about a week previously. She was thrown on to the back of her head and vomited for several hours afterwards. She also complained that her right leg felt long and that she dragged her feet more than usual when walking. I must admit to making a very cursory examination, assuming that she was merely suffering from a general concussion. Two days later I was called to see her and found her in a stuporose condition and by the time she reached hospital a few hours later she was so completely unconscious that it was impossible to elicit any localizing signs. Lumbar puncture failed to confirm the presence of intracranial hæmorrhage. During the ensuing week some movement returned on the left side and she improved up to the point of attempting to speak. A wrong-headed view of the value to be attached to the improvement led me to refrain from operating and she got a further attack of cerebral œdema which proved fatal. Autopsy revealed a large clot of blood lying between the *dura mater* and the cerebral cortex in the left parietal region which was causing compression and general cerebral œdema.

The two consultants who were kind enough to see the patient with me, were eloquent in their restraint when commenting on the subsequent history. Failure to make a correct diagnosis and subsequently to have your eye thoroughly well wiped by a *confrère* is humiliating and one such experience with regard to any particular disease should be sufficient for all time; but I must confess to having failed three times at least to diagnose a pneumothorax, the last occasion being within the past three months.

The first occasion was when I had under treatment a man with advanced syphilis. He developed a cough and suddenly became short of breath and I diagnosed some obscure form of asthma. The consultant, a very senior member of the profession, gave me a most instructive clinic on what he considered a typical acute pneumothorax and expressed surprise at my having missed it.

A few years later I got caught again.

This patient had been rammed in the left side of his thorax anteriorly when playing lacrosse and complained of pain and shortness of breath. I diagnosed a traumatic pleurisy. His brother who was a medical man, subsequently saw him with me and I was again made to realize that I had missed a very obvious condition.

The third instance was, as I said, quite recent and this time the diagnosis was made for me by the radiographer.

The patient, a girl of six and twenty, gave a history that twelve months previously she had suffered from double pleurisy. Later she had influenza and coughed up blood. The present condition arose about two weeks before I saw her when she developed what she thought was another attack of pleurisy in the lower part of the right axilla. She felt tired, but had no cough nor any expectoration. There was no movement of the right side of the thorax and I diagnosed bronchial occlusion from the pressure of the enlarged glands. The skiagram revealed a very obvious pneumothorax and showed the lesion where the rupture of the alveoli had occurred.

A wrong diagnosis might easily entail useless expense to your patient, though not necessarily any physical injury, from the treatment recommended.

A few years ago I arranged for a woman whom I believed to have a multinodular myoma, to undergo a course of X ray therapy. After further consideration she decided to make more certain of relief by operation and for financial reasons I arranged for her admission to the Adelaide Hospital. At operation she was found to have dermoid cysts of each ovary impacted in the pelvis.

A refusal to make a definite diagnosis may as easily lose you a patient as the discovery of a mistaken one, caution being regarded as ignorance.

A child, about seven years of age, was vaguely ill and the mother was certain he was getting meningitis, as she had lost a child previously who became ill in the same way. I was not prepared to agree with her on the evidence available and so was given no further oppor-

tunity of reconsidering my opinion. My successor must have been more docile, as he successfully attended the child out of the world on the diagnosis as supplied by the mother.

Another case of a somewhat similar kind was that of a plump, healthy looking girl, also about seven years of age, who was brought to me on account of a slight limp. The condition was so vague that after seeing her three times I advised her being taken home, kept extremely quiet and brought back in a few weeks' time for further investigation. The parents evidently thought that I was trying to exploit them and I saw nothing more of the child for over six months. Then I found her most dreadfully emaciated, the thigh flexed on the abdomen, a large abscess surrounding the hip joint and suffering agonies of pain. The rest I had recommended had been accomplished by making her walk two miles to school every day till it became impossible for her to walk any longer.

Failure to realize that quite 90% of swellings in children are inflammatory in origin may lead to many wrong diagnoses.

A child, two years of age, was admitted to hospital with a large hard swelling of the buttock and thigh of a few weeks' duration. The child was afebrile and very anæmic. The mass was hard and nowhere fluctuant. The skin was marbled and somewhat purplish in colour. I diagnosed a rapidly growing sarcoma, but exploratory incision revealed a massive abscess filling the buttock and extending two-thirds of the way down the thigh. Although afebrile, the child succumbed to toxæmia. Earlier incision would probably have saved its life.

To my mind one of the most difficult conditions to deal with from a diagnostic aspect is a presumedly subacute appendicitis. Many of us must have seen patients come to operation when the findings have been extremely difficult to reconcile with one's diagnostic conscience and yet the salve is supplied by the fact that very few of them develop any further troublesome symptoms, although a certain number may later develop evidence of duodenal involvement. I have, of course, seen the appendix incriminated and removed for more acute conditions which have variously proved at operation or later to be due to gall stones, duodenal ulcer, renal calculus, pyelitis, tubal inflammation, inflamed Meckel's diverticulum or strangulation by bands, and one can only recall such diagnostic failures with regret and the hope that such experiences have engendered a wider surgical perspective.

Before passing on to touch briefly on some other matters of a wider application than a mere recounting of my shortcomings, I should like to stress very strongly the need of being sure of your facts before expressing an opinion when privileged to be called in as a consultant.

Some years ago I was asked to see a patient with *hyperemesis gravidarum* who had failed to respond to rest, trained nursing and the systematic use of saline enemata *et cetera*. The patient was desperately ill, vomiting continuously, and complained of intense thirst and a salt taste in her mouth. As everything possible appeared to have been tried, I did not press for a further course of treatment in hospital and recommended that the pregnancy should be terminated. This, as the consultant, I was asked to do and it proved a difficult as well as a distasteful undertaking. Some time later the patient called to see me. During the short conversation necessary to convince her that I was unable for ethical reasons to treat her any further, she informed me very definitely that the normal saline enemata of which she had many, were prepared by dissolving one tablespoonful of salt in one pint of water.

Further comment is unnecessary except to express my firm conviction that the regular medical attendant was as much in the dark as I was with regard to the strength of the saline solution that was being used.

Obstetrics.

And now with your permission I propose to deal extremely briefly with some rather diverse subjects which, nevertheless, affect us very materially as a profession to which the public looks for guidance.

Most of us here tonight are, or have been, intimately connected with the practice of obstetrics and it must be a profound disappointment to all of us to learn from the statistical tables for the years 1911 to 1929 inclusive that, despite the more intensive training of medical students and nurses, the establishment of pre- and post-natal clinics and the greater vigilance of the public health authorities, there has not occurred that progressive improvement in the maternal mortality rate which might reasonably have been expected, and that the death rate of infants under one week has coincidentally remained practically unaltered.

Our only solace is the hope that the improved machinery for guarding the health of the expectant mother has not yet had time to manifest itself and that later tables will show that progressive improvement which we must all sincerely hope for. That such a hope is not unreasonable is, I think, indicated by the following series of figures in reference to the antenatal clinic at the Queen's home, kindly collected for me by the Resident Medical Officer. During the year 1927 when the clinic which had started to operate the previous year, was firmly established and the capacity of the home had been practically doubled, 503 women were confined, of whom 337 had attended the clinic, showing that 166 had not availed themselves of the facilities provided for antenatal supervision.

In the following year 555 confinements occurred and 415 of the patients had previously attended the clinic, a difference of 140.

Last year the number rose to 588 and only 91 of these women had failed to attend the clinic.

The total attendances for this latter period numbered 1314.

These figures, I think, show very definitely that what one might term the antenatal habit is rapidly growing and, although, as I shall immediately show you, the treatment instituted in many of the cases to anticipate possible disaster is not reflected in an improvement in the general statistical tables for the State, I think it is fair to assume that if the clinic had not been operating the position would have been worse than it is.

I am fully aware that in view of the great disproportion between the number of cases dealt with and the total birth rate which for the past five years has averaged over 11,000 *per annum*, such an assumption may appear grossly extravagant; but I would remind you that an apparently insignificant

stimulus is capable of producing a very far-reaching response.

To emphasize the seriousness of the position I would point out that the maternal mortality for this State last year was 4·88 per thousand live births. This figure is greater than that of the three immediately preceding years and was exceeded only six times in the preceding eighteen years.

These facts must induce a train of thought which I think it wiser that we should elaborate for ourselves rather than that I should attempt to make any suggestions. It is to be sincerely hoped that such mental exercise will not lead us to the conclusion that a bedrock average has been attained and that we are merely the agents of a designing force which permits us to go so far and no further.

Vaccination.

And now I want you to consider for a moment the very serious problem of the unvaccinated population, not only of this State, but of Australia as a whole, which the two deaths from small pox recently reported must have brought to your minds. Practically the only members of the community who have been vaccinated since the compulsory clause of the *Vaccination Act* was repealed in 1911, fall into three groups: Those who enlisted during the war period, those who intend travelling, and those who showed their faith by rushing to be treated during the scare of 1913. You will some of you remember that people simply tumbled over each other to get inoculated while this scare was on, with the result that the supply of matured calf lymph soon became exhausted and that the disabilities which accompanied the use of the comparatively immature lymph issued later, were often quite serious.

Why should such a state of things be permitted to continue in this supposedly enlightened age when the slogan of the hour is prevention? All honour to the members of our Quarantine Service, but how much easier would be their duties if they knew that they had a vaccinated population behind them. Surely we as a profession are partly responsible for this *laissez-faire* attitude towards what I regard as a very real menace to the community. The establishment of a properly constituted Ministry of Health which is receiving serious consideration, may help to solve the difficulties surrounding this and the preceding subject that I have mentioned.

Examination and Diagnosis.

And may I before closing tax your patience a little further by making a short comment on a matter which I think affects us quite seriously as clinicians; and in making these remarks please understand that I am tilting at a system not at individuals. So much is crowded into the present day curriculum that there is little time for students to develop a proper perspective, with the result that quite a number of unnecessary methods of examination are often either suggested or embarked upon without a previous orderly application of the special senses; and I find that it is a large part of my duty, in the small sphere of teaching with which I am connected, to try to establish what I believe to be relative values in methods of diagnosis.

A brief reference to two cases will serve to emphasize my contention.

A patient who had been operated on some months previously for osteomyelitis was sent a journey of several hundred miles because the wound continued to discharge and several small sequestra had come away. A probe inserted through the usual mass of granulations revealed a freely movable sequestrum. The time occupied in anæsthetization, rubbing off the granulation tissue and extracting the sequestrum was under ten minutes.

Again, a partially unconscious patient with a lacerated scalp wound was anæsthetized and the scalp shaved and cleaned in the most approved fashion. The depths of the wound were then explored prior to suture and a gutter depressed fracture discovered. I was previously informed that the X ray plant was not available and subsequently learned that no preliminary use had been made of either the probe or the finger, the reason given being the fear of conveying infection.

If you will think for a little it will soon appear that there is a growing tendency to regard diagnosis and consequently treatment as impossible without elaborate biochemical procedures, cardiographic records or numerous X ray investigations, as the case may be, and the trouble is that any of us may become involved in this maelstrom of mechanization, as instance my third case of pneumothorax, previously referred to.

How can we educate our public if we do not first train ourselves on balanced lines? Certainly the public needs instruction even on such apparently obvious questions as to whether the baby is born with its eyes open. Such a question sounds foolish, but becomes serious when followed up by the young mother's statement that she does not know the first thing about babies. This and relevant matters are comparatively simple to deal with; but when it becomes evident that there is a growing impression in the public mind that a fracture cannot be treated without having it examined by X rays, that indigestion can only be successfully treated by the qualified practitioner after prolonged and unpleasant investigations, that heart disease requires the use of elaborate electrical appliances to help in its cure and that radium is a panacea for every form of cancer, it is surely time to take stock of the position and ask ourselves very seriously where the fault, if you will admit that there is one, lies.

Conclusion.

And now you will be glad to know that I have run my race. In my opening remarks I said that I had no special message for you, but I have confessed, made statements, criticized and ventured to make suggestions. I have done so in all good faith and after much thought, and if you can point any moral from my imperfectly presented remarks I am well repaid. I will conclude with a slight modification of a line allotted to one of the leading characters in Sheridan's play "The School for Scandal" and subscribe myself "your most obedient humble servant."

NATURAL FEEDING.[1]

By GUY SPRINGTHORPE, M.B. (Melb.), M.R.C.P. (Lond.),
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Honorary Clinical Assistant to Out-Patients,
Children's Hospital, Melbourne.

THE natural and most scientific food for the infant is mother's milk. If the mother is to have an adequate supply after the infant is born, good health during the prenatal period is essential. Three aspects have to be considered—hygienic, dietetic and obstetric.

A healthy mental outlook, a balanced emotional life, regular and sufficient exercise, rest, sunlight and fresh, moving air are fundamental. The diet of the expectant mother should be of the right quality and balanced. Three meals daily are sufficient in quantity and extra feeding or overfeeding is contraindicated. Animal experiments have shown that for normal lactation increased vitamins are necessary. In human dietaries the most likely deficiency is of vitamin *B*. This is present most plentifully in yeast, "Marmite" and "Bemax," and to a less extent in peanuts, lentils, egg yoke and whole grain cereals. The total calcium in the diet should not be low.

In addition to these general measures any abnormality of the nipples should be treated. Flat nipples should be gently rubbed with vaseline and brought out. Excessive handling or the use of spirit for hardening may cause soreness or cracking. Inverted nipples often do not respond. In the later months the breasts may need support without overpressure. The mother should be instructed in the essentials of motherchaft and feeding and confidence as to her ability to breast feed secured. One of the chief difficulties in natural feeding is psychological, either from excessive anxiety or lack of desire to succeed. Without her confident cooperation good results will not be obtained. Finally, regular medical supervision of the expectant mother and correct obstetrical procedure are required.

After confinement the institution of breast feeding must be undertaken. According to the degree of exhaustion of the mother, the baby may be put to the breast from six to twenty-four hours after birth. In this interval small quantities of water should be given. When placing the infant at the breast the nipple should project directly into the mouth over the tongue and be well grasped. The nostrils should be free. For the first twenty-four hours feeding at six hourly intervals is sufficient, leaving the baby two to five minutes at each breast. Prolonged sucking may make the nipples sore and upset the baby. Thereafter most normal babies progress properly if fed every four hours in the day time, that is, five feedings, with an eight hour sleep at night away from the mother. With these intervals it is safest at first to give both breasts at each feeding until full establishment occurs. The chief stimulants to lactation are regular sucking and complete emptying of the breasts.

The infant loses some weight—eight to twelve ounces—in the first few days. After the third day a steady increase in the supply of breast milk should take place, reaching the optimum in from one to two weeks. The best nutritional results will be obtained if toward the end of the second week the infant is getting about fifteen ounces per day. During this time, if there is any doubt as to the infant's progression, it is wise to do daily test feedings.

In a minority of instances the supply of breast milk does not increase appreciably for one, two or more weeks. This should not be taken as an indication that establishment will not occur. Regular suction and complete emptying of the breasts should be persevered with. In these cases the loss of more than about a pound weight should be prevented by temporary complementary feeding. The inanition resulting from greater weight loss causes decreased sucking power in the infant. The amount of complementary feeding required can be judged only by daily test feedings. Less than the calculated requirement should be given so that the infant will go readily to the breast and overfeeding be avoided. A suitable mixture is the split protein mixture C.1 or the A.1 without any added fat and at first diluted with equal parts of water. Details of this mixture are given in the "Guide to Infant Feeding" published by the Health Department. Lactose is the safest sugar to add, as sugars with a sweet flavour may give the infant a distaste for mother's milk. For this reason sweetened condensed milk is least suitable.

When the increase in supply is rapid, the breasts will need support in a loose sling. Drastic purgation of the mother should never be employed. The supply tends naturally to be adjusted to the demand, if correct mothercraft and feeding methods are employed. In such cases it may be found that sufficient milk is obtained at the first breast at each feeding and the use of both breasts discontinued. In fact, in the majority of instances after a few weeks the length of time at the second breast can be diminished and the infant finally fed every four hours on alternate breasts only. During establishment it should be remembered that if the infant is put to the breast at irregular and too frequent intervals, overfeeding may easily result.

Although the four hour interval is usually suitable, some infants take less than others at a feeding and may require the breast every three and a half or every three hours. After some weeks four hour intervals can generally be substituted. Occasionally one breast feed through the night is required during establishment and can be discontinued later.

In any case where the nutrition of the infant is not progressing normally, the only way of knowing the amount of food being taken is to do a day's test feedings. This is done by weighing the baby before and after feeding on an accurate scale of the Chatillon or Avery variety, reliable to within

[1] Read at a meeting of the Victorian Branch of the British Medical Association on May 7, 1930.

one-quarter of an ounce. The ordinary spring balance is not sufficiently accurate. It is necessary to weigh before and after each feeding throughout the day, as normally different quantities are taken at different times—often nearly twice as much in the first two as in the last two feedings each day. For this reason a single estimation is misleading.

Attention to mothercraft and the general hygiene of the mother and baby is just as important as meeting the nutritional requirements. Irregular feeding, excessive handling and overstimulation are common errors.

An indication of the results that can be obtained in natural feeding by combined medical, nursing and maternal care, may be of interest. One of the first demonstrations on a large scale was that of Sedgwick at Minneapolis. Under his direction and as a result of combined effort, 92% of infants in the community were breast fed for the first month and 70% for six months. Similar and at times better results have been obtained since his time. Grulee in his book on the "Physiology and Care of the Newborn" states that: "Under proper regulations only an extremely small percentage, certainly less than 1%, of the newly-born infants should be artificially fed from birth." In the *American Journal of Diseases of Children*, November, 1927, in reviewing over seven hundred cases from the obstetric nursery of the Kansas General Hospital, Neff reports that 82% of babies were entirely breast fed on leaving hospital, 16% needed some complementary feeding and 2% were bottle fed only. In the last 91 of this series 90 were entirely breast fed on leaving.

In practice it not infrequently happens that the supply of breast milk, which may perhaps never have been adequate, commences to fail at an early stage and the infant to lose weight progressively. The causes underlying this are usually the negation of the correct methods of handling. They may be briefly summarized: (i) faulty methods during institution and maintenance, (ii) non-recognition that the breast milk is beginning to decrease, (iii) illness of the mother, (iv) local conditions of the breast, (v) infantile causes.

In a great many of these cases of failing lactation restoration of breast milk feeding can be effected, in some instances when the baby has already been taken off the breast for a considerable number of days. The principles underlying restoration which are really similar to those underlying breast feeding in general, may be indicated as follows.

The first is psychological—to restore the mother's confidence. The second is regular suction—five feedings at four hourly intervals, both breasts being used. The third is complete emptying of the breasts. After nursing the residue in both breasts is expressed by hand. The fourth is breast stimulation by means of hot and cold douching twice a day when the breasts are empty, followed by massage. The fifth principle is suitable complementary feeding of the baby. This is important as infants considerably below their expected weights are too weak to suck vigorously and must first be built up with suitable artificial food. Lastly, the hygiene of the mother and baby is adequately attended to.

If the skilled assistance of an infant welfare certificated nurse or a mothercraft nurse is available, these measures may be applied at home. Better results, however, will be obtained by residence in a mothercraft training school of the type visited during this course of lectures, where the daily routine is often more easily carried out than it would be in home surroundings. At the Tweddle Hospital and School of Mothercraft the results have been generally satisfactory, although in about one-sixth of cases an increased supply has not resulted. Residence of less than ten days does not usually give restorative methods a proper chance. Two weeks are preferable and by this time the mother understands and is able to carry on the treatment after discharge, when further improvement often takes place. From observation of the mothers and babies it is apparent that by comparatively simple means worth while results can be obtained.

THE PRINCIPLES OF ARTIFICIAL FEEDING.[1]

By HILDA E. KINCAID, D.Sc., M.B., B.S.,
Medical Officer for Child Welfare, City of Melbourne.

THE fact that many babies are artificially fed and that many are incorrectly artificially fed and that of the incorrectly fed so many die, seems to justify this brief paper on the simple but fundamental principles which underlie correct artificial feeding.

As a result of the experience gained in supervising the work of the city health centres, I am convinced that it is possible to keep practically all normal babies well if they are fed and managed according to physiological principles, also that it is fatally easy for such normal babies to become ill if they are incorrectly managed and improperly fed, and once they are ill it is often appallingly difficult to make them well again.

The principles of correct feeding are admirably set out in Dr. Scantlebury's book, for which we are all indebted to her. These principles are taught to the infant welfare nurses in the training schools and are followed in the health centres. In the centres we find that with those babies who are brought for regular weighing and who are dieted according to weight in the accepted way, we rarely have any trouble. The trouble arises amongst those who do not attend at all or who attend irregularly.

On investigating the infant deaths in Melbourne City in 1928 we found that only nine out of the total 96 infant deaths occurred in centre attendants and most of these were unsatisfactory and irregular attendants. In 1929 only eight out of the total 81 infants that died had attended centres. These figures include deaths of children under one month of age, but if we consider only those babies between one

[1] Read at a meeting of the Victorian Branch of the British Medical Association on May 7, 1930.

and twelve months of age, we still find six times as many deaths in non-centre attendants as in centre attendants. Very few of the deaths were in breast fed babies. Most were artificially fed in a haphazard fashion.

I do not know what is the extent of artificial feeding throughout the Commonwealth or even throughout the State, but I can speak with some degree of accuracy of our own city area. Here we found, taking a number of consecutive births, irrespective of their attendance at centres, that at the end of one month of age 13% had to be either partially or entirely artificially fed, at the end of two months 21% had to be so fed, at the end of three months 30%, at the end of four months 38%, at the end of six months 43% and so on.

These figures are in some degree a measure of the failure of the scheme which has for its main object the maintenance of breast feeding; but the fact remains that so many are artificially fed and that so many deaths occur in these babies and, further, that the greatest proportion of deaths occurs in those who are artificially fed without regard to physiological principles.

This seems to me striking evidence of the value of and the necessity for a more general knowledge of the fundamental principles underlying successful feeding. These principles are of the simplest nature and may be considered under the following heads: (i) the care and preparation of the food, (ii) the method of feeding, (iii) the amount and nature of the food.

Care and Preparation.

Any artificial food given to an infant should come from a clean source, above reproach, and must be kept scrupulously clean, cool and covered from flies or contamination. I think that all milk should be boiled, unless the supply is intimately known and a check kept on the bacteriological content, as the immunity of artificially fed babies to possible milk borne infections of the enteric type seems to be low. Economical and effective methods of keeping milk clean and cool in the home are demonstrated in detail to mothers by nurses in the health centres.

In preparation of foods attention must be paid to accuracy. In practice all measurements of the ingredients of artificial foods are volumetric and are generally made in tablespoons and teaspoons. The household tablespoons and teaspoons are so variable in size that in ordering an artificial feeding for a baby one should insist on some standard measure or spoon being used. The "Lactogen" people have a good standard spoon which is accurate, the "Glaxo" one is also fairly accurate and other standard measures and spoons can always be obtained. It is common to meet with babies with digestive upset and to find that the upset is due to the fact that the baby is getting more of one or all ingredients than it should do because a spoon is being used which is much bigger than a standard one. Accuracy is also necessary when filling a measure; for example, if one is measuring a fluid, the measure should not be dipped into the fluid, but the fluid poured into the measure. It is easy to imagine that when sticky viscous fluids, such as condensed milk or emulsion, are measured out the amount taken, if the spoon is dipped in, is appreciably greater than if the fluid is poured accurately level into the spoon. When one is measuring powders, the most accurate measure is obtained by packing the spoon tightly with the powder and then levelling off with a knife. Dr. Scantlebury, in a series of experiments, found that there was a big variation in spoon content according to whether the spoon was loosely filled or tightly packed. The most consistent results were obtained by packing tightly and levelling. I have several times seen babies who have come along to the centres underfed on a powdered milk, because the spoon was being filled loosely and inaccurately, and they have immediately begun to gain satisfactorily when a more accurate method of measuring was demonstrated.

Method of Feeding.

Regularity is the keynote. Whether a three hour or four hour feeding be adopted is largely decided by the digestion of the infant and the convenience of the mother. For the normal infant certainly the interval should not be less than three hours. Whatever the time interval adopted, the feedings should be absolutely regular and an eight hour interval should be allowed at night, from 10 p.m. till 6 a.m. or from 12 midnight to 8 a.m., according to the convenience of the mother.

Details with regard to the correct temperature, correct rate of flow of the food from the bottle, nursing of the baby and holding of the bottle—in fact, general management and mothercraft—are really important. I am sure that absence of good mothercraft is responsible for the poor progress one sometimes sees in babies in institutions.

The Amount and Nature of the Food.

The amount and nature of the food must be such that water, caloric, growth and repair requirements as well as vitamin requirements are all fulfilled and the food must be digestible and assimilable by the infant. The best indication that the food is suitable in nature and amount is the progress of the infant along normal lines. It is important to remember that any change in the nature, the strength or the amount of food must be made gradually, so that the infant can adapt itself to the change. Sudden changes are apt to be disastrous and the mother should always be warned of this.

An infant requires a greater amount of water per unit of body weight than an adult because of the greater proportion of water in the body tissues and because of the more rapid metabolism. Calculations from normal breast fed infants led to the conclusion that the average water requirement of a normal infant per day is about two and a half ounces per pound of body weight. This, of course, includes the water in the food. In hot weather with

much sweating or in cases of vomiting or diarrhœa more water is required to make up for the loss. If the baby is not given enough water, particularly in summer, there is danger of its overfeeding in order to gain its fluid requirements and so produce dietetic upset. This is more likely to happen when concentrated foods are being given, as, for example, with lactic acid milk feeding, and it is important to remember to give extra water in these cases to meet fluid requirements—a point which is sometimes overlooked.

A very fair idea of the caloric requirements per pound of body weight of infants has been arrived at by clinical observation of normal breast fed infants and also by more elaborate calorimetric experiments. By such investigations it has been found that the approximate caloric requirements for the normal infant are as follows: 50 calories per pound of body weight during the first, second and third months; 47 calories per pound during the fourth month; 45 calories per pound during the fifth month; 44 calories per pound during the sixth month; 43 calories per pound during the seventh month; 42 calories per pound during the eighth month.

These figures give a very useful guide to the approximate caloric requirements for any normal infant of known weight, but for abnormal infants some variation is necessary; for example, for a baby who is definitely underweight or overweight the caloric requirements will be estimated from the weight which would be normal for that baby and not from the actual weight. If there is any digestive upset, the caloric value of the food may have to be cut down very considerably for a time. Again, a baby who has been underfed, cannot be suddenly pushed on to its full caloric requirements, but the increase must be made gradually. There are, of course, slight variations due to seasons and activities, somewhat less being required in summer than in winter and somewhat more in an active baby than a lethargic one; but apart from these slight variations one should always give nearly the theoretical requirement. If there is any gross deviation from this, we get either underfeeding with consequent loss of weight and probaby constipation or overfeeding with consequent dyspepsia, evidenced by flatulence, vomiting, colic, diarrhœa, curdy motions *et cetera*.

It naturally follows that in order to feed properly one must know the caloric value of the foods used. This is not difficult, as nearly all infants are fed either on fresh or dried cow's milk suitably modified by the addition of milk sugar, cane sugar, malt sugar or dextrose and of some kind of fat. These can all be found by reference to tables, but even those of us with the most fickle memories will find it possible to remember the values of the foods which are in most common use, namely: Cow's milk, two standard tablespoons (one ounce) give approximately twenty calories; milk sugar, one level standard teaspoon gives approximately 10·5 calories; cane sugar, one level standard teaspoon gives approximately 12·9 calories; "Hypol," one level standard teaspoon gives approximately fourteen calories.

In any artificial food there must be enough protein and salts to allow of growth and repair and enough carbohydrate and fat for heat and energy. Since milk is the natural food for all mammalian young, when human milk is not available, milk from some other animal is generally chosen. In this country cow's milk, either fresh, dried or concentrated, is the food that is most often used and it is generally taught that it should be modified in such a way that its percentage composition becomes somewhat akin to that of human milk, though, owing to inherent differences between the two, it is not possible to make them really similar. In any species of animal the protein ratio in the milk of the mother is in proportion to the rate of growth of the offspring and is apparently that best suited for the uneventful progress of the young.

The average composition of human milk is given as: Protein, 1·5%; sugar, 7%; fat, 3·5%; salts, 0·2%; whilst the average composition of cow's milk is given as: Protein, 3·5%; sugar 4·5% to 5%; fat, 3·5%; salts, 0·75%.

In human milk 51% of its calories are derived from fat and only 8% from protein, the remaining 41% being derived from sugar, whereas in cow's milk 49% of the calories are derived from fat, 22% from protein and 29% from sugar.

The general method of modifying cow's milk so that its protein becomes more digestible and at the same time the percentage composition nearer to that of human milk, is by dilution with water and addition of sugar and fat.

Since human milk contains 1·5% of protein, we should see that the artificial food has at least this minimum amount. It has been contended that to give protein beyond this amount lays an unnecessary strain on the digestive and excretory organs. Personally I have not seen evidence of this, provided the protein is given in a form which is readily digestible. Pritchard states that protein deficiency will cause defective growth and feeble resistance. In human milk the ratio of lactalbumin and globulin to casein is greater than in cow's milk and although casein contains nearly all the known amino acids, it is low in cystine, the lactalbumin and globulin being rich in this. Further, the casein of cow's milk is not the same as that of human milk, the difference being shown by the coarseness of the curd and by fixation and anaphylactic tests. The combination of proteins in cow's milk probably has a lower biologic value for the human species than that in breast milk, and it may therefore be advisable in artificial feeding to give a higher percentage of cow's milk protein.

When cow's milk is diluted to render the protein more digestible and to bring its percentage to a level approaching that of human milk, sugar is added to bring the percentage somewhere near to 7%. The sugar of preference to be added is milk sugar,

though cane sugar may be used if milk sugar is not obtainable and malt sugar, dextrose or dextrimaltose is sometimes used for special reasons. The main reason given for using milk sugar is that the cerebrosides in the central nervous system contain galactose and that there is active formation of these during the myelination of the nervous system which proceeds most rapidly in the first few weeks of life.

In adding fat to bring up the percentage to that of human milk either cream, butter fat or cod liver oil emulsion is the substance most usually used; but for some reason foreign fat is the ingredient to which it seems most difficult for the infant to adapt itself. Fat must, therefore, be added very cautiously and increased in amount very gradually. In some cases it is not possible for the theoretical amount to be added before the infant shows signs of indigestion.

Diluted cow's milk contains an adequate amount of minerals except iron, but as the full time baby is born with a store of iron in its own liver (the liver of an infant is five times as rich in iron as that of an adult), this does not matter very much. At about six months of age, however, one usually begins to give a little strained broth made with meat and all sorts of vegetables, beginning with one teaspoon and gradually increasing to two to three tablespoonfuls daily.

An infant needs to be supplied with at least four known vitamins, namely: *A*, the growth promoting and anti-infective vitamin; *B*, the antineuritic vitamin; *C*, the antiscorbutic vitamin; *D*, the antirhachitic vitamin.

Vitamins *A* and *D* are present in the fat of the milk and in any animal fat which may be added, particularly cod liver oil, and are not destroyed by quick heating. Vitamin *C* is diluted by the dilution of the milk and is largely destroyed by heating. Therefore in all artificial feeding vitamin *C* should be supplied in the form of orange juice, tomato juice, swede turnip juice *et cetera*. Vitamin *B* is also diluted by dilution of milk, but is moderately stable and is not destroyed by quick heating. How far or in what way we affect the child by diluting the vitamin *B* of the milk and whether we should add some vitamin *B* to the diet because of its dilution, are points on which we need more research. Quite a number of articles have appeared recently pointing out that vitamin *B* deficiency in infant diet is not uncommon, though these refer more particularly to breast feeding where the baby is dependent on the mother's diet for its supply.

The foregoing remarks have briefly outlined the accepted rules for infant feeding. One could talk for a long time on the details of various methods, but that is unnecessary, for the same basic principles underlie all.

Let us now take an imaginary concrete example.

Let us suppose we have under observation a child of three months who weighed eight pounds at birth and for the first two months had gained regularly five to six ounces a week, but for the last few weeks has only been gaining one to two ounces a week and its weight is now eleven pounds. We do a series of test feeds and find that the total amount of breast milk available is ten ounces daily. This represents $10 \times 20 = 200$ calories; but the baby, who should by this time weigh twelve pounds, needs approximately $12 \times 47 = 564$ calories. It is therefore $564 - 200 - 364$ calories short and these we decide to supply with a milk and water mixture, equal parts, gradually adding milk sugar up to 7% and more gradually still adding fat in the form of "Hypol" (which is a 50% fat) up to 3·4%.

The factors necessary to know are that: one ounce of milk gives 20 calories, one standard teaspoon of sugar of milk gives 10·5 calories, one ounce of sugar of milk equals 11 teaspoons, one standard teaspoon of "Hypol" gives 14 calories, one ounce of "Hypol" equals nine teaspoons.

If we take 50 ounces of milk and 50 ounces of water, we have 100 ounces of mixture containing 1·7 ounces of protein, 2·5 ounces of sugar and 1·7 ounces of fat.

To increase sugar to 7% and fat to 3·4% add 4·5 ounces of sugar of milk and 3·4 ounces of 50% fat; or, in other words, add 49·5 teaspoons of sugar of milk and 30·6 teaspoons of "Hypol."

We have then a mixture one ounce of which contains: half an ounce of milk giving approximately 10 calories, half a teaspoon (nearly) of sugar of milk giving 5·2 calories, one-third teaspoon (nearly) of "Hypol" giving about 4·6 calories (total approximately 19·8 calories):

If we divide the calories required by the child, namely, 364, by the caloric value per ounce of our mixture, namely, 19·8, we find that we will have to give $364 \div 19{\cdot}8$, that is, 18 ounces of such a mixture each day to fulfil the caloric requirements. It is possible that the child will be able to digest only a smaller amount of added "Hypol" in which case the caloric value per ounce will be correspondingly diminished and a larger quantity of the food will have to be given.

Supposing, however, we decide to work up the complement to a 3 : 2 mixture of milk and water, adding cane sugar to 7% and fat (as "Hypol") to 2·6%, the other factor necessary to know is that one teaspoon of cane sugar gives about 12·9 calories and one ounce of cane sugar equals nine teaspoons.

If we take 60 ounces of milk and 40 ounces of water, we have 100 ounces of a 3 : 2 mixture containing three-fifths of 3·5, that is, 2·1 ounces of protein, three-fifths of five, that is, three ounces of sugar, and three-fifths of 3·5, that is, 2·1 ounces of fat.

To increase sugar to 7% and fat to 2·6% add four ounces of sugar and one ounce of 50% fat; or, in other words, add 36 teaspoons of cane sugar and nine teaspoons of "Hypol."

We have then 100 ounces of mixture containing: 60 ounces of milk giving approximately 1,200 calories, 36 teaspoons cane sugar giving approximately 464 calories, 9 teaspoons of "Hypol" giving approximately 126 calories (1,790 calories per 100 ounces, *id est*, 17·9 calories per ounce).

Dividing our requirements by the caloric value per ounce, $364 \div 17{\cdot}9$, gives us 20, which is the number of ounces of such a mixture required each day.

When it becomes necessary to complement the feeding with an artificial food, this must be done correctly or the breast milk will further diminish. It is a common error on the part of the mother to begin to give alternate feeds of an artificial food when the breast supply begins to fail. There is no surer method of hastening the failure, as the less stimulated breast produces less milk. The breast should be given regularly first and the complement, if necessary, after it. Complementing with a very sweet feeding as, for example, with sweetened condensed milk, is often fatal to breast feeding, as the infant, enjoying the sweet feeding, exerts less and less effort to empty the breasts.

After the age of six months, whether baby is artificially fed or not, one usually gives, as well as broth, a little dry stale crust to chew or a bone to gnaw in order to give muscular exercise for the jaws. A little later small spoon feedings of starchy foods, such as sago or oatmeal jelly or strained groats, are given in order to accustom the baby both to spoon feeding and starchy food.

A point that I should like to stress is that in contradistinction to the old days when a doctor, generally speaking, merely advised a mother to try this or that food, nowadays the doctor is expected to give detailed instructions regarding correct amounts and methods. It is obviously easy to calculate these amounts, but it takes time and also involves regular weighing and supervision, since the details must vary with the varying conditions of growth. This is the work that child welfare centres are doing continuously and on the whole doing very well. These centres are sometimes charged with competing with the doctors; but, far from competition being the aim, the aim is that they shall be of service to the doctor in helping to relieve him of some of this detail, to carry out test feeds *et cetera* for which it is impossible for him to spare the time and to detect any divergence from the normal at its inception, so that it may be referred immediately for medical treatment. In a great many cases there is excellent cooperation between these centres and the profession and I feel sure that great mutual benefit will result when such cooperation becomes universal.

FEEDING AND MANAGEMENT OF CHILDREN AFTER WEANING AND THE BOTTLE AGE.[1]

By STEWART FERGUSON, M.D.,
Honorary Physician to In-Patients, Children's Hospital, Melbourne.

THE part of tonight's programme that has been allotted to me is the management and feeding of children after being weaned or at the end of the bottle stage.

While milk at the beginning of this period is still the most important item of the child's dietary, it is insufficient by itself and becomes of definitely less importance as the child grows older. A child should be weaned from the bottle between nine to ten months and a child wholly breast fed to nine months should never be put on the bottle. An infant by this time should be on undiluted milk and it is my practice to add two, then three, then four teaspoons of any cereal or varying cereal to it. This is sweetened with sugar and spoon fed. A biscuit is given at the end of the meal and the 10 p.m. feeding dropped. I give broth in which plenty of vegetables have been cooked and strained much earlier than this and continue it. It adds iron to the diet, cow's milk being deficient in this respect. At ten months first a half, then a whole egg is beaten up in a feeding once a day. Eggs, however, while a useful food, cannot always be tolerated and the capacity for managing them must be left to the individual child. At twelve months lightly boiled or poached eggs and bread crumbs are given, then vegetable *purées*, stewed fruits without seeds or skins, farinaceous puddings, custards, jellies plain sponge cake, gravies, bread, butter, toast, jellies of jams, and fruit juices freely. At fifteen months, often earlier, I give pulped fish, brains, chicken or rabbit and at eighteen months pulped red meat.

This is the programme I usually follow in increasing the diet of children.

In dieting all children, irrespective of age, there are certain principles which must be recognized. In the adult one has only to cater for tissue repair and maintenance, but in the child one has to cater for growth in addition. People find it difficult to believe that a failure to thrive may be due only to dietetic reasons, especially if the appetite of the child is large. Also mental development and physical development are in direct relationship and those who have studied the subject closely, are unanimous in saying that mental development parallels physical development. A child's diet of this age must be gone into just as carefully as an infant's and care taken to see that it is properly balanced. The main difference from an adult is that, relatively speaking, a child requires much more protein. This is the only food that will repair tissue waste and induce growth. Fats and carbohydrates merely supply heat and energy. The nature of the protein must also be considered from the point of view of its amino-acid content. Cystin, leucin, lycin and tryptophan are the main ones concerned in promoting growth of children and these are present most efficiently in meats. While an adult can exist on the protein supplied by vegetables, eggs, cheese *et cetera*, this will not apply to the growing child with its increased demands. Often if the diet of the child is gone into carefully it will be found to be overwhelmingly starchy and what protein it does have, is more or less swamped and out of proportion. Again, relatively speaking, a child with its superabundance of energy requires more fats than adults. This excessive starchy diet interferes with its assimilation. Fat digestion is upset and further trouble ensues. One so frequently notes cod liver oil is given to children whose nutrition is so impaired under these circumstances. Nothing could be worse. While recognizing its great value in many cases, I should say there is no drug more abused in the dietetics of children. I would often regard it as the resource of the unthinking. Another common fallacy which is met with at this time, is the undue importance attached to milk. In this growing period large quantities of milk are given and if the child is not taking its food well more milk is given between meals, thus tending further to lessen the appetite of the child.

[1] Read at a meeting of the Victorian Branch of the British Medical Association on May 7, 1930.

As milk is roughly 88% water, it would require an enormous volume to satisfy the needs of the child, but on being swallowed it becomes bulky and for the time being satisfies the appetite and so more suitable foods are excluded. Milk should be limited in amount, only given as a drink at meal times and never between meals and its importance, like cod liver oil, not over-estimated. In this period also, trouble often arises from an endeavour to treat constipation by various foods. People are often prejudiced against giving drugs for constipation and they try to rely on certain foods as fruit, brown bread, porridge, vegetables and decoctions of dates and figs. These act purely by their bulky, irritating undigested residue irritating the mucous membranes.

As time goes on, more and more of this coarse, starchy and cellulose type of food is given and a chronic intestinal indigestion is set up. The child loses its appetite, becomes pale and pasty with protuberant abdomen and gets tired readily. He does not thrive and is often febrile, has abdominal pains and suffers from so-called bilious attacks. He is often labelled tuberculous and more cod liver oil is given. An analysis of the diet shows it to be overwhelmingly starchy and woefully deficient in protein. The symptoms are often so vague or may be mainly those of a resulting nervous instability that the underlying condition often escapes notice.

All these coarse foods must be immediately eliminated and a full allowance of protein given. The mother usually says the child will not take the food ordered, but that is one of the characteristic symptoms of the condition. It may go further and the child develop an abnormal liking for dirt, sand, mortar and other similar articles. Nevertheless the rigid dietary must be insisted on and as the child improves, normal appetite returns.

The main dietary for these types of children consists of eggs, milk, meat in all forms, easily digested carbohydrates as crisp toast, macaroni, vegetables as marrow and mashed cauliflower, jelly part of jams, no seeds or skins. Anything leaving an irritating residue must be eliminated. Constipation can be treated by simple laxatives in minimum doses, as rhubarb and soda, "Petrolagar" or the like.

There is another class of child whom we meet with during this period that I can only label as difficult feeders. First of all we have the child who has been on the breast only and when it is time to wean, persistently refuses any other type of food. With these weaning must be done abruptly. It is no use persisting with the breast till it is twelve to thirteen months old or keep up half measures. It is no use putting them on the bottle, no success is met with that way, they must be entirely spoon fed. An important point is that the mother is the worst person to feed them and little success is met with until the food is given by a person, more or less a stranger and the mother keeps out of the way. Some of them are very persistent in refusing food. One child under my care continued to fight for five months, lost ten pounds in weight and then suddenly submitted. The majority of them seem to give way suddenly. Then we have the older child. The mother says: "I simply cannot get him to take his food" or they may resent their foods in varying ways.

There are some who will go ahead, provided the food is smooth, but give them bread or meat or biscuits and they will immediately proceed to vomit. They can often vomit at will and will do so when any article of food rougher than usual is introduced into their diet. Others on the contrary will hold it in their mouths for hours. I have often seen children four hours after their last meal with the food still not swallowed and parked between their teeth and cheeks. The usual history is that the mother says the child simply will not take its food, it refuses all and sundry, except perhaps milk or some unsuitable article it may be very fond of. It is really extraordinary sometimes how they can appear so well nourished when there is so little intake.

A thorough examination must be made of every child, because very frequently a persistent anorexia may be the first symptom of a tuberculous infection, but in the majority of cases the examination reveals no abnormality. This condition is quite common and if allowed to continue, the child's nutrition must suffer; they have a lessened resistance and consequently are more prone to infections.

It must be recognized the condition is nearly always of nervous origin, but may be part and parcel of a nervous instability the result of a continued badly-balanced diet. If not properly managed it leads to further nervous manifestations and may be the starting point of neuroses and neurasthenias of later life.

As regards management, in the first place the diet given must be carefully investigated and must be properly balanced. An adequate supply of protein, fat and avoidance of excess of carbohydrate is the most important factor in this respect. Coarse, bulky food as porridge, root vegetables, raw fruits, brown bread must be eliminated and milk definitely cut down in amount. I always try to give the food as concentrated as possible owing to the small quantity taken, for example, the milk should never be diluted, beaten up egg in a glass of milk concentrates its nourishment without increasing its bulk and so on. No food of any sort should be given between meals and the child should never be fed till some time after waking from sleep, but given an opportunity to be in the open air before meals.

Of equal importance to this is the general management of the child and the method of feeding him. As a rule the mother of such a child is the least satisfactory person to feed him and if possible he should be handed over to some other capable person for this purpose. Much can be done by the manner of feeding him; excessive exhortations and undue praise of the food are of no value, but he must be

approached in a confident manner as if anticipating success, not in the diffident, doubting manner so often used. Meal time must not be made a period of unhappiness to the child, he must not be unduly forced, but must be treated in as plain and as matter of fact a way as possible. There is another mistake that is often made. There is inherent in all of us a desire to occupy the centre of the stage and so it is with the child. If his lack of appetite is discussed in front of him, as is so often done, he regards himself as somebody unusual and will immediately trade on it. Never discuss a child's peculiarities in front of him. This aspect is very much more marked in an only child; the larger the family, the more as a rule they approximate to normal. One cannot wonder if an only child, with all eyes on him, with his appetite and movements discussed daily in his hearing, does develop a sense of importance very much out of proportion.

Then again, the whole environment of the child has to be gone into and anything causing nervous excitement to be avoided. I can only discuss principles in a paper like this, but each individual child requires individual methods. Drugs are of some help; I have found the old established rhubarb and soda mixture with perhaps a little *nux vomica* and compound infusion of gentian to be tonics of some value. Nervous sedatives, especially bromides, are often of very distinct value, but the dose should never be large.

I must apologize for perhaps appearing to overemphasize this aspect of my subject, but in my own practice never a week passes without seeing several of these types of children and I have tried to put before you the difficulties I most commonly meet with.

I think time and trouble spent in going into details in these directions and into the peculiarities of each individual child will in the long run thoroughly repay one.

THE MEANING OF MATERNAL MORTALITY.[1]

By MARY C. DE GARIS, M.D., B.S. (Melbourne),
Geelong.

THAT there is great confusion of thought amongst most writers on maternal mortality is pretty evident to the careful reader of the letters, papers and reports contributed to our journals both here and in England. The source of the confusion is not so apparent, but may perhaps be best disclosed by drawing a parallel between the mortalities of child-bearing and that of such a well understood disease as enteric fever, that test of sanitation.

Nearly all the reports are marked by an incomplete survey of the questions at issue and especially by their failure to draw a clear distinction between the clinical and preventive aspects of the problem. The whole emphasis is placed on the management of child-bearing (at first of labour, latterly of pregnancy also) by the clinician, and no attention whatever is given to the underlying causes of the conditions with which the clinician has to deal. The animus against the general practitioner so evident in most official reports and the unconvincing character of the general practitioner's answer to these attacks are alike due to the failure to distinguish clinical from preventive work.

Clinical medicine deals with things as they are and with immediate causes and terminal conditions. Preventive medicine deals with the underlying causes; the presence of the disease indicates a failure of its efforts. Clinicians and public health officials have both lost sight of this fact.

We cannot do away with child-bearing, but we can do away with the faults of child-bearing; this we attempt in our universal attention to antenatal care. But antenatal care still fails to save mothers and babies because there is some fault in the health of the mother, probably of the community itself, as yet unfathomed and undealt with.

The object of this paper is to suggest the true meaning of the maternal death rate and of the early infantile death rate and to turn the attention of readers and workers to the search for underlying causes.

Child-bearing has two mortalities, correlated but distinct; these are special or occupational mortalities, those of child-bearing. On the character of child-bearing depend the numbers and virility of the race. Its object is a child, and a healthy child at that, and its success can be measured by the kind of child produced and by the kind of mother left to rear that child. There are therefore several indicators of the efficiency of child-bearing—the vigour and health of the child, the ease and efficiency of labour, the uneventfulness of recovery of both mother and child. The reverse of these give us the morbidities of first the child and then the mother. That the former is much the heavier is obvious from our own daily experience and from the most casual glance at our year books or reports. Such a summing up makes it clear that the maternal death rate and the infantile death rate are but indicators of the state of child-bearing as a whole and that to discover the causes of the former we must study the conditions affecting the latter. It is not sufficient to consider only terminal conditions such as puerperal sepses, toxæmias, congenital debilities *et cetera*. Their underlying causes must be sought.

The problem is world wide and has been recognized as of first-class importance since Dr. Meigs published her report in America in 1916, Dame Janet Campbell and British Medical Association committees theirs in England and Dr. Morris's and Professor Allan's more recently in our own country. It is increasing in the very period in which most attention has been given to it and in spite of the

[1] Read at a meeting of the Victorian Branch of the British Medical Association on March 8, 1930.

most conscientious application of Listerian principles and of antenatal care.

What do we learn from a death rate in general medicine? It shows us the prevalence, the virulence, the areas and periods affected by the disease and whether it is increasing or decreasing. With proper statistical precautions we can determine the comparative effect of various means of management. With proper record and analysis it may show us the actual terminal conditions leading to death. But in no case does it show us the underlying (root) causes—it deals only with results. This may be illustrated by reference to typhoid fever, a disease whose prevention and treatment are well understood.

The health officer who devoted most of his time to studies of the typhoid bacillus and blood reactions (the Widal) and the occurrence of those terminal conditions of ulceration, perforation and hæmorrhage and to criticisms of their management, instead of to sewerage, water supplies, dairies, "carriers" and flies, would have mistaken his vocation, no matter how much care he gave to improving or criticizing hospitals, doctoring, and nursing, and developing the biochemistry of the disease. His real business is with underlying causes. His job is to prevent the occurrence of the disease with which the clinician has to deal. The death rate falls and disappears because the disease disappears, not because it is better managed. In an epidemic, though the duties do overlap, yet the clinician's main duty is to prevent complications, to prevent infection from that particular case and to see that good nursing, good doctoring and good hospitals are provided, whereas the public health official's duty is to prevent the spread of the epidemic by looking to milk and water supplies, sewage disposal, destruction of flies, discovery of carriers *et cetera*, not to spend his time criticizing his colleagues' management of the cases actually under their care.

This may be taken as true of all preventible diseases (including diseases of maternity); the preventive measures necessary always vary with the disease concerned and its underlying causes, but are always distinct from the clinical measures necessary in diagnosis and treatment. This is the main fact forgotten by those interested in the prevention of the maternal and early infantile death rates. They waste their time studying terminal conditions such as puerperal sepses and toxæmias and other accidents of motherhood and infancy and accusing the clinicians of faulty treatment and even of faulty or dishonest diagnosis, while they neglect their proper function of discovering and controlling the underlying causes. This last will never be done until a study of average child-bearing as it occurs today is made, in special countries, in special parts of the same country and under various conditions and at different periods.

Even the imperfect studies already made disclose important facts which have not as yet been interpreted, for example, the death rate in Australia is greater in the towns than in the rural districts, whereas in England the reverse is the case. Though the death rate of women as a whole has decreased, yet the maternal death rate has increased or at best remained stationary, while the early infantile death rate (under one week) has increased, although the infantile death rate under one year has much decreased. In Victoria the maternal death rate has increased every year for the past five years. In Australia as a whole the maternal death rate was decreasing up to 1915, but since then it has steadily tended to rise. The death rate is higher among mothers of stillborn infants than among other mothers; these associated death rates are rising.

Old authors formerly emphasized the fact that the death rate rises with the duration of labour, a fact much neglected of late years. Its importance lies in the fact that the death rate is definitely related to the degree of efficiency of labour itself. It is also quite easy to show that the efficiency of labour depends primarily on the efficiency of the first stage (for example, the forceps rate rises with the duration of the first stage). All reports recommend antenatal care as improving the outlook for both mother and baby and yet continue to make the old accusations against the general practitioner's cleanly and patient management of labour. Really a course of logic would not come amiss to some of our authors.

What is the sum total of the conclusions drawn from most statistical inquiries into these death rates? That the death rate is a matter of management, first of labour (wound infection) and latterly of pregnancy (antenatal care) as well. It is true that both these affect the death rates, but in the sense of reducing them and not of causing them, as the reports are apt to claim.

The general practitioner knows (and so do his patients!) that he is responsible for a reduction of the death rate and not for its increase, in spite of the specialists' accusations. His knowledge is as securely based on his own work as is his accusers' on their work. The reason for the undeserved blame is that neither has fathomed the chief underlying causes of the trouble. The maternal death rate is truly an indication of the state of child-bearing itself, while the infantile death rate is an even more delicate indicator of the condition of child-bearing, for it is very much larger than the former, besides the fact that a child and a healthy child at that, is the object of child-bearing. Both clearly show that child-bearing is pathologic today. Surely it is time to admit that present day technique has been as successful in obstetrics as in medicine and surgery, and that the old time "puerperal fever" (a carried infection) is just as much a vanished quantity as are hospital fevers and gangrenes. The bush nursing and East London results are sufficient proof that modern technique is adequate against accidental infections in conscientious hands. It is a mistake to allow the pre-Listerian "puerperal fever" due to a carried infection to obsess our minds to the neglect of all logic, all reason and all experience.

Imagine the death rate of both mothers and babies if there were no doctor available in cases of *placenta prævia*, transverse lies and preeclamptic conditions. He definitely reduces the death rate; and whatever the terminal condition (sepsis, hæmorrhage, exhaustion *et cetera*) it is the faulty pregnancy and not the doctor that is primarily to blame.

Maternal mortality is clearly an occupational death rate; and that occupation must be considered in detail if the underlying factors are to be discovered. It is necessary to know the prevalent conditions during pregnancy, during labour, during recovery and their effect on mother and baby, not only now and in our own country, but in other countries and at other times. These are the very things that writers of official reports neglect and that can be learned only from the general practitioner and preferably from the doctor who has recorded and analysed his cases. If, instead of blaming the general practitioner for ignorance, carelessness and dishonesty, it became fashionable to treat him as an honourable and capable member of an honourable profession and to ask him for his opinion on the matter, some additions to knowledge might be made. The general practitioner and his patient both know that he reduces the death rate and yet officials talk as if he increased it.

While both active practitioners and preventive officials are content to accept things as they are, we shall continue to have a rising, or at least not falling, maternal and early infantile death rate, for it is clear from all the statistics presented by our critics that some cause is acting that they have not discovered, and that it will continue to act until it is discovered and corrected.

The inefficiency of present day child-bearing is sufficiently evident from its two associated death rates and from the prevalence of tedious and complicated labour. The death rates are undoubtedly due to the inefficiency and not to the management, save in rare cases. General practitioners save many women and their babies who would die without their assistance. The common experience is that tedious labour and renal disease are the common complications of practice and that it is these mothers who are liable to lose their babies and to develop fevers and complications of various unpleasant kinds.

The great majority of women bear children and everyone starts life as an infant, consequently child-bearing offers an incontestable indication of the state of the general health of the whole nation. And as in the practice of general medicine we seek and find underlying causes of ill health in the mode of life, the diet, in general and focal infections and so forth, it is in the same directions in which we must seek and will probably find the underlying causes of faulty child-bearing. Labour may be compared to a hill climbing test for an engine—it makes latent defects patent.

The proof of the neglect of this side of child-bearing is that there are no accepted text books, either clinical or hygienic, dealing with the effect of systemic conditions on maternity, as if dietetic deficiencies or excesses, faults of ventilation, work, exercise, focal sepsis *et cetera*, important as they are in general medicine, had nothing whatever to do with the efficiency of child-bearing.

The maternal and infantile mortalities will never be abolished while we are content to accept a pathologic motherhood as satisfactory. A physiologic labour is the prime necessity. What prevents the woman from delivering herself easily and so invites or necessitates interference? The disregard of this aspect of the problem is what makes all reports and inquiries up to date so futile to all concerned.

Animal experiments have shown that diet affects fertility, viability, lactation, duration of life and vigour. According to McCollum errors in reproduction and early senescence may be the main indications of an inadequate diet. There is clear need for a specialized inquiry into the necessities of diet for the child-bearing woman. Probably child-bearing will prove a most delicate indicator of the sufficiency of a national or a special diet.

Instead of attributing the excellent records of countries like Sweden or Holland to management during labour (the general employment of midwives instead of doctors) it would be more sensible to inquire into the national diet and the national mode of life. If it is true, as the *Argus* has reported Dr. Allan to have said, that their death rate is not comparable to ours because Swedish women do not have tedious labours nor renal complications, it is certain that we should find out why they are so favoured. Not the most arrant disbeliever in the family doctor accuses him of causing either delay in labour (he is rather accused of unwisely shortening labour) or renal disease, yet these are the cases which give us dead babies and complicated recoveries.

Summary.

To summarize:

1. The correlated maternal and infantile death rates are clear proof of the prevalence of faulty child-bearing.

2. The neglect of the distinction between the clinical and preventive aspects of the problem has led to the unjust and illogical attribution of all responsibility to the management, first of labour, then of pregnancy. The clinical aspect deals with difficulties actually present; clinicians can and do reduce the death rate, but they cannot abolish it. Prevention depends on the discovery and correction of the causes underlying the occurrence of these difficulties. The parallel with the prevention and management of enteric fever serves to illustrate the argument.

3. The most probable sources of difficulties with child-bearing lie in conditions affecting the systemic health of the whole nation and may be found in faulty diet, faulty mode of life, general and focal (especially dental) infections, housing *et cetera*.

Child-bearing is a most delicate test of the systemic health of the nation.

SURGERY OF THE BILE DUCTS.[1]

By CLIVE H. R. JAMES, M.B., B.S.,
Geelong.

I WOULD state at the outset that it is not my intention in any way to inflict on you my views on so important and intricate a subject as the surgery of the bile ducts, based as they must be in a provincial town on a comparatively slight experience on the subject. Rather I would tell you of the difficulties I have encountered, crave your indulgence of my mistakes and express the hope that when I have concluded, your discussion of the cases placed before you will be of help to "us of lesser light." Those of us present, situated as we are in Geelong, some miles at least from a surgical centre whence, even though we would seek highly specialized and skilled aid (frequently the patient's circumstances decree otherwise) are forced at times to face emergencies involving the biliary tracts and to deal with them to the best of our ability.

The first case I would place before you.

A female, aged sixty-one, unmarried, approximately 94·5 kilograms (fifteen stone) in weight, was operated on by me in August, 1925, for cholelithiasis. The preoperative diagnosis was confirmed by a very excellent skiagram by Dr. J. L. Clendinnen, the stones being very clearly visible. The operation was performed on August 29, 1925. A right paramedian incision was made and the gall bladder removed by the method of ligation of the cystic duct and artery and stripping the gall bladder from its bed from duct to fundus. The hepatic and common ducts were palpated, but not explored by instrument. Apparently they were clear of stone. The patient made a rapid and uneventful recovery and was entirely free of any digestive symptoms until July, 1929. In July, 1929, apparently without warning she had a rigor followed by intense pain of a colicky nature in the right hypochondriac and epigastric regions. The pain radiated through to the back. She vomited and gradually became jaundiced and ran a temperature of approximately 39·4° C. (103° F.). I considered the condition to be that of acute cholangitis, but also considered a possibility of a stone being present in the common duct. Dr. McPhee saw her in consultation with me and concurred, especially in view of the rigor and high temperature. Her condition cleared up in about a week on medical treatment, although she still had some residual symptoms in the nature of flatulence after meals and a feeling of fullness in the epigastrium. Suddenly on November 27, 1929, she had another attack similar to this, except that it was far more severe. There was intense pain of the same nature as before and extreme collapse and the abdomen was board-like in rigidity. I had little doubt this time that the condition was one of impaction of a stone in the common duct. I administered morphine and atropine and removed her immediately to a private hospital. Dr. McPhee again saw her in consultation and agreed with the diagnosis. In this attack she began to show definite signs of heart failure and owing to her general condition we decided for the moment that surgical interference was out of the question. She was kept under morphine and observed carefully for the next eighteen hours, during which time her pulse picked up wonderfully. However, the pain persisted in a lesser degree and jaundice progressed fairly rapidly. In view of this, after consultation with Dr. McPhee, I decided it was unwise to delay interference, as the maximum improvement to be hoped for without operation seemed to have been reached.

On November 28, 1929, under ether anæsthesia administered by Dr. R. N. S. Good and assisted by Dr. McPhee, I opened the abdomen through a right paramedian incision. The omentum was densely adherent to the old peritoneal wound and the whole upper part of the abdomen seemed a mass of adhesions, making it very difficult to define any structures in the region of the common duct. Finally, after a great deal of dissecting and separating of adhesions, the hepatico-duodenal ligament was defined. During these manœuvres one or two alarming hæmorrhages were encountered, apparently from torn omental veins. The stone was at last felt firmly jammed down in the ampulla of Vater, and nothing would budge it. I attempted to mobilize the duodenum by paraduodenal incision of the peritoneum, but owing to her extreme fatness this did not give visual exposure of the duct; therefore I adopted what seemed to me to be the only course, namely, steadying the duodenum and stone with the fingers of the left hand, incised the duodenum with the right hand, passed a volsellum and clamped it on to the stone and slit up the ampulla. This enabled me to remove a stone apparently about eighteen millimetres (three-quarters of an inch) long by about eight millimetres (one-third of an inch) in diameter. The duodenal wound was sutured, a drain passed down to the sutured area of the duodenum and also to Morrison's pouch and the abdomen closed. She had a very stormy passage for a few days, but finally recovered and is now back at her home performing ordinary household duties.

The second case was short and fatal.

I was called on September 6, 1929, to Lara, about fourteen miles away, and found a woman of sixty-six in an obvious attack of obstruction of the common bile duct from gall stones. The attack had already lasted three days and in addition cholæmia was pronounced. I administered morphine and removed her immediately to a private hospital. Her cardiac condition was bad. Auricular fibrillation was present and I decided, owing to her age and the history of lessened pain during the last few hours coupled with her general condition, to wait and hope that the obstruction might have passed. However, during the next twenty-four hours, although the pain became less, the jaundice became more pronounced and she became definitely delirious and had to be restrained in bed. Dr. G. R. Darby saw her in consultation with me and we decided that operation held the only possible hope of recovery. That evening, under local anæsthesia of "Novocain" 2·5%, preceded by prenarcosis of morphine 0·015 gramme (one-quarter of a grain) and hyoscine 0·6 milligramme (one-hundredth of a grain), and assisted by Dr. R. G. Darby, I opened the abdomen through a right paramedian incision. The "Novocain" produced good relaxation and I was able to get excellent exposure, but all search for a gall bladder was in vain. I then proceeded to identify the common duct which was fairly easily found, and in it I was able to palpate and move about three small stones. I incised the duct and managed to extract these. I passed a probe down into the duodenum and up into the hepatic duct and could detect no further stone. During all this I could see no sign of gall bladder or cystic duct. I then sutured a tube into the common duct, placed another tube in Morrison's pouch and closed the abdomen. The patient picked up fairly well for a few hours after the operation on saline solution injections, digitalis and brandy and indeed for a short while looked as if she might possibly pull through. Then her general and mental condition became gradually worse, making it necessary to restrain her in bed, and finally she died in a state of cholæmia on September 10, 1929.

I managed to obtain a limited *post mortem* examination through the operation incision and removed liver, stomach, bile ducts and duodenum. I carefully dissected the parts, cut the liver into pieces and found no gall bladder, but very dilated right and left hepatic ducts and in the smaller ducts leading into them several very small gall stones. All the tissues examined showed evidence of extreme toxæmia.

The last case is as follows:

H.G., a male, aged sixty-four. He was seen by me in April, 1929, while he was having a typical attack of acute cholecystitis, apparently associated with gall stones. This subsided on medical treatment. Two

[1] Read at a meeting of the Victorian Branch of the British Medical Association on March 8, 1930.

weeks afterwards he had an attack of gall stone colic and this attack subsided under medical treatment. After the attack subsided I submitted him to X ray examination. No stone was detected by direct X rays. A Graham's test was then performed and the gall bladder was not outlined by dye. I told him of the condition, namely, that I suspected that he was suffering from inflammation of the gall bladder and gall stones. All went well for about four weeks when he had another acute attack of gall stone colic and cholecystitis and definite cholangitis. This attack subsided, but left him very weak. In view of the frequency of the attacks and his gradual decline in condition, I advised operation before another attack supervened. This he agreed to, but when arrangements were practically completed he suddenly altered his mind, consumed a quack cure and triumphantly exhibited to his, I must say, doubting relatives, numerous hard, pale, putty-like masses which he had passed *per rectum* as the nostrum had decreed, and stated that he had got rid of his gall stones and was cured.

Alas, all was vanity! About a week later I was called to him and found him in an attack far surpassing all previous ones in severity and he rapidly became jaundiced. His symptoms and signs suggested a ball valve obstruction to the common duct. I removed him to a private hospital and Dr. McPhee saw him in consultation with me and we agreed that, if possible, operation should be delayed until he had picked up condition. He was put on saline treatment for seven days and it was then thought advisable to operate before another attack occurred. His general condition absolutely contraindicated the administration of a general anæsthetic in the shape of ether and as we had not then the facilities for the administration of ethylene, I decided to operate under local anæsthesia on June 19, 1929.

Assisted by Dr. McPhee, I opened the abdomen by a right upper paramedian incision. The anæsthetic was "Novocain" 2·5% preceded by morphine 0·015 gramme (one quarter of a grain) and hyoscine 0·6 milligramme (one-hundredth of a grain). This gave excellent relaxation and exposure. On opening the abdomen, I found a very dilated, thick-walled, friable gall bladder. It was very tense and on opening it contained bile-stained mucopus and a very large, smooth, kidney-shaped stone which I removed. I then proceeded to remove the gall bladder by the method of subserous resection from the fundus towards the duct. I employed this method because I considered the structures too friable to allow of any traction and clamping. During this resection a fair amount of hæmorrhage was encountered, but was easily controlled. I palpated the common and hepatic ducts, but did not explore them by instrument. In view of his marked cholangitis the common duct was drained by a tube. Another tube was inserted into Morrison's pouch and the abdomen closed. His condition at the end of the operation was apparently no worse than at the beginning. For some reason or other bile did not drain freely for the first few days, but this righted itself. He showed remarkable recuperative powers and against all advice insisted on sitting out of bed on the tenth day, instructed a car to be sent for him and departed from the hospital to his home fourteen days after the operation and said he would "take the risk." This I regard as remarkable in a man apparently too ill before operation to have a general anæsthetic administered to him. The wound drained for about three weeks longer and then closed and he progressed to the stage of getting fully dressed and going about his home and garden.

On August 18, 1929, he had a severe rigor, became jaundiced, had severe pains in the right hypochondriac region and altogether presented a picture of acute cholangitis. He ran a temperature of about 39·4° C. (103° F.); the attack subsided with the administration of calomel after a few days and he again seemed to be progressing well. A fortnight later he had another attack similar to the last and a fortnight after that still another. This time, however, his temperature did not subside and became a definite septic type, swinging from 35·5° to 39·4° C. (97° to 103° F.) and he began to look very ill. There was also a definite area of fullness on inspection. The area had as its centre his old cholecystectomy scar, but on percussion he had dulness extending out into the right flank and his upper area of liver dulness was definitely increased. I consulted with Dr. McPhee and we agreed that pus was present in this area. X ray examination revealed a right anterior intraperitoneal subphrenic abscess. He was returned to hospital and under light ether anæsthesia administered by Dr. McPhee I drained the abscess by the transpleural route, resecting portion of the tenth rib of the right side and evacuating a large quantity of bile-stained pus. Again he demonstrated his recuperative power, installed himself the master of his fate and departed home at his own risk at the end of seven days. His condition rapidly improved, the wound ceased draining and healed and the temperature dropped to normal and this time he progressed as far as walking in the street. He then gradually started to become weaker and lost his appetite and occasionally ran an evening temperature, but I failed to detect anything definite on examination other than an area of dulness at the base of the right lung. This I considered to be due to adhesions of the pleura following his subphrenic abscess. However, he commenced to go further down hill. Dr. McPhee again saw him in consultation with me and advised X ray examination, as he considered the dulness at the base of the right lung to be more likely due to an encysted collection of fluid. This view proved to be correct. The amount of fluid revealed was fairly large and on aspiration proved to be pus. His cardiac condition at this time was not good, although the X rays showed his heart to be surprisingly little displaced. This fact was as much as anything responsible for misleading me in the diagnosis. Under ethylene anæsthesia administered by Dr. Good, assisted by Dr. McPhee, I resected portion of the ninth rib and evacuated from the pleural cavity an extremely large quantity of foul smelling pus. Again he picked up immediately after operation and on this occasion deigned to stay twelve days in hospital. He is now at home, his wound is not closed nor his lung fully expanded. His general condition is excellent and he insists on getting up and walking about and is gaining strength. He is undoubtedly one of the most remarkable patients I have seen and after the way which he battled through his first operation, it was extremely unfortunate that he should have had to submit to the remaining two.

To summarize the cases, they include:

1. A case of cholelithiasis. The gall bladder was removed at operation and only digital exploration of common and hepatic ducts was followed approximately four years later by obstructive jaundice due to impaction of a gall stone in the ampulla of Vater. Removal of the gall stone by the transduodenal route ended in recovery.

2. A case of advanced cholæmia caused by obstruction of the common bile duct by multiple gall stones. The stones were removed by supraduodenal incision of the common bile duct and the common duct was drained. The patient died. *Post mortem* examination revealed absence of the gall bladder and the presence of several small stones in the larger biliary canals.

3. A case of cholelithiasis associated with cholecystitis and cholangitis. One large stone was removed from the gall bladder, the common and hepatic ducts were explored by fingers only; this was followed by subphrenic abscess and empyema. These collections of pus were evacuated, cure of subphrenic abscess and relief of empyema occurred.

Points for Consideration.

Some of the points I would raise for your consideration are:

1. In cases of cholelithiasis where the gall bladder is removed, does it suffice to explore the common

and hepatic ducts by palpation alone? While I feel that in the first case no stone was present in these ducts at the time of operation, the patient had absolute freedom of symptoms for practically four years after the operation, I frankly admit the possibility that a very small stone may have been there and since grown in size. That stones can and do form in the bile ducts irrespective of any gall bladder is well exemplified in Case II. Personally I am against routine instrumental exploration of these ducts. When a stone has been present in them, I have had no difficulty in detecting it by palpation alone and it is undoubtedly very likely that a stone so small as to be missed by palpation will also be missed by instrumentation and I cannot but feel that the trauma of a solid instrument along the delicate lining of the ducts can be anything but harmful and, more often than not, probably unproductive of any result.

2. Are cases of absence of the gall bladder or even misplacement of the organ really so very uncommon? In a comparatively small surgical experience I have encountered the case outlined above and one in a patient operated on by the late Dr. F. J. Newman whom I assisted some four years ago. In this latter case also *post mortem* examination failed to reveal any sign whatsoever of a gall bladder.

3. We have here an excellent illustration of the absolute necessity of placing no relianec on normal findings by direct X ray examination of the biliary tract for calculi. Here in Case I we have a very stout woman and stones showing very clearly by direct X ray examination and in Case III an extremely thin man with a large stone undetected by X ray examination. In my opinion the Graham's test is the only method by which we can get reliable X ray evidence as to the state of the gall bladder. In both public hospital and private practice I have never yet seen a gall bladder not outlined on radiological examination prove normal at operation. I would stress also the necessity for the surgeon to explain simply but thoroughly to the patient the X ray procedure.

In Case III I think the patient would have submitted to operation at first without trouble and would not have bothered with any quack medicine had he fully understood the significance of an absent gall bladder shadow. As I could not show him the shadow of a stone on the X ray film I think he had doubts as to its presence and thus temporized. Graham's test in my experience has been more reliable than anything else in refuting or confirming the suspicion of gall bladder disease. I would like the opinion of others as checked by operation as to the reliability of this test.

4. While medical authorities generally seem to agree that the most reliable single test of liver function is the dye excretion test with use of phenoltetrachlorphthalein, it is obvious that one of the greatest needs in biliary surgery is a method whereby we can rapidly and easily estimate liver function from the point of operative risk, in the same way as we estimate kidney function in relation to operation involving obtruction of the urinary tract. The damage to the liver overshadows all in cases of biliary tract obstruction. It depends on the recovery of the liver function after removal of the obstruction more than anything as to whether the patient recovers or dies in cholæmia. If anything like an accurate idea of the state of the liver could be obtained in these cases, it would help tremendously in determining the best time for operative interference, give an idea of the chances of recovery and, I think, in many cases prevent a surgeon, as in Case II, from submitting a patient in an absolutely hopeless condition to the culminating ordeal of an inevitably fatal operation.

5. In cases of impaction of a gall stone in the ampulla of Vater is not the transduodenal route the easier for removing the obstruction? Retroduodenal approach to the ampulla by mobilization of the duodenum by paraduodenal peritoneal incision does not in a very fat patient seem to give the exposure claimed for it. The transduodenal approach is simple and I should think, provided the duodenal incision is carefully sutured, free from risk; it has the added advantage that there is not the risk of retroduodenal escape of bile, as occurs when the common duct is opened by the retroduodenal approach; the incision in the ampulla also enlarges the entrance of the duct into the duodenum and so renders more likely the passage of any further stones.

6. Regarding complications of drainage of the common bile duct in the nature of subphrenic abscess. My own practice in all cases where the cystic duct is cut and whether it is ligated or not, is to place a drain attached to the cut end of the duct and another tube into Morrison's pouch. The latter tube is removed in about forty-eight hours and the former in from seven to ten days. This procedure was carried out in Case III and yet a subphrenic abscess developed. The reason for its development was, I think, the postoperative attack of cholangitis associated with inflammatory obstruction of the common duct. The infected bile finds its way out by bursting through the healed end of the cystic duct through which the tube draining the common duct has been originally placed and thus gives rise to the abscess. In view of the extensive coexistent hepatitis and cholangitis in this patient at the time of his first operation, I feel it would have been wiser to have at least administered a biliary tract antiseptic, such as hexamine, for some considerable time after the operation. That the attacks were those of cholangitis and not gall stone obstruction I feel certain. The onset in each attack was heralded by severe rigor. The temperature swung from 35·5° to 39·4° C. (97° to 103° F.). The pain was not of a severe colicky nature of the gall stone obstruction and the appearance of the stone removed rendered unlikely the presence of another. In other words, in all cases of common duct drainage associated with definite cholangitis should not one give intense antiseptic treatment as soon as

possible after operation with a view to preventing in some degree such undesirable sequelæ as encountered here? What approximately is the value of hexamine or any other drug in this direction? That the empyema had its origin from the subphrenic abscess I have little doubt. All illustrated that the drainage of the common bile duct may be followed by both subphrenic abscess and empyema and it behoves one to consider the prophylaxis of subphrenic abscess following bile duct drainage.

7. The question of anæsthesia in these invariably desperately ill patients. Personally I feel that ethylene and oxygen is the anæsthetic of choice in all of them. The patients enumerated above were operated on by me before we had in Geelong the facilities for ethylene anæsthesia and I feel certain that whenever ethylene is not available, local anæsthesia of "Novocain" 2·5% will allow all operative manœuvres on the biliary tracts to be carried out if combined with hyoscine and morphine, provided a large enough incision is made; and I would strongly advise all those in the country where emergency major operative procedures may be forced upon them, to become thoroughly conversant with its technique and if one does this, one should never have to abandon it and turn to a general anæsthetic in the course of an operation. Its advantages over ether anæsthesia in poor operative risks I am sure no one will dispute. My own opinion is that ether anæsthesia in cases of biliary obstruction and its consequent effect on an already much damaged detoxifying system such as the liver, are responsible more than any other factor for fatal results in these cases.

This concludes the points I would raise. In no sense do I regard these remarks as a contribution to knowledge, but rather as a confession of difficulties and mistakes and as illustrations of some of the pitfalls that may await those who are called to operate on acute conditions involving the bile ducts. I thank you for your attention and my excuse for addressing you is that my remarks may at least be productive of a discussion of benefit to those such as myself who through lack of opportunity of dealing with a large number of these cases are yet forced at times to take the life of a patient into their only too consciously inadequate hands.

Reports of Cases.

PNEUMONIA.

By A. M. WATKINS, M.B., B.S.,
Roseville, New South Wales.

ON February 10, 1930, I was summoned to Mrs. A., aged seventy years, and on examination the temperature was 39·4° C. (103° F.), the respiratory rate was 46 and the pulse was 120 per minute.

She had taken suddenly ill with great pain in the left side with shivering attacks. The lower lobe of the left lung was dull on percussion, the breath sounds were inaudible on auscultation and the sputum was frothy and bright red and cyanosis was marked on lips, tongue and ears.

I diagnosed pneumonia and gave a gloomy prognosis. However, she was put on the following mixture four hourly:

Potassii iodidi, 0·18 gramme (three grains)
Creosoti, 0·12 mil (two minims)
Extracti glycyrrhizæ liquidi, 0·6 mil (ten minims)
Aquam, ad 8·0 mils (two fluid drachms).

In addition no opening medicine was to be given and hot bottles to side and feet were ordered.

A crisis occurred on the seventh day, preceded by a copious diuresis and all went well for two days; but then acute abdominal distension with agonizing pain set in together with a typical hippocratic facies and dry brown tongue and fæculent vomiting.

A bismuth and hydrocyanic acid mixture was given together with an enema of molasses and asafœtida and frequent turpentine stupes to the abdomen. No result save flatus occurred for the next three days and matters appeared hopeless; but suddenly seven watery, offensive, bile-stained motions occurred in which much mucus was evident.

Since then the patient has been quite well, being out of bed in a chair, eating and sleeping well.

I feel sure the bismuth mixture helped to conserve the patient's strength and also the asafœtida and molasses enema was of real service.

With regard to the iodide of potassium and creosote mixture it has been of great value in pulmonary affections of acute type in both the elderly and aged for many years.

Reviews.

BIOLOGICAL CHEMISTRY FOR STUDENTS.

"ELEMENTARY PRACTICAL BIOCHEMISTRY," by Osborne and Young, Melbourne University, has now reached its third edition.[1] This book which is wholly set up and printed in Melbourne, covers more or less the usual ground of practical biochemical books for the use of students of medicine; there are certain additions to meet the needs of agricultural and veterinary students. It is a book of 147 pages interleaved with blank pages; apparently the latter are used to record the results of class experiments. There is no table of contents, but there are a very short appendix of reagents and an index. The text is divided into thirty lessons each of which begins with a theoretical consideration of the subject followed by a series of tests which are more or less consequent to the theory. The lessons vary considerably in quality, some are quite excellent, others are inclined to be scrappy. Amongst the best chapters are: Lesson xiv on "Ferments," Lesson xix on "Blood," Lesson xxx on "The Living Cell." Lesson xvii on "Dietetics" lacks balance; for example, in the description of "The Essential Qualities of a Diet" no mention is made of the importance of "salts," while irrelevant headings such as "Cost within purchaser's means" *et cetera* appear. We are told: "Protein is the chief growth food, but calcium phosphate should not be forgotten."

For an elementary text book the theoretical considerations are sometimes too concise to be lucid. This is especially noticeable in the lesson on colloids, where quite an advanced knowledge of this difficult subject is apparently taken for granted.

Many of the subheadings could be set out with more clarity; a uniformity of heading is noticeably absent, so that there is confusion at times in reading the text. On page 102 portion of the text is transposed.

Several important tests are omitted, for example, in regard to cholesterol the classical Grigaud test or any accepted modification of it is not mentioned. The quantitative tests for glucose could be brought up to date with benefit.

The book seems well adapted for its purpose, to provide the student in Melbourne University with a guide to practical biochemical lessons. It will be found equally useful in universities where a similar type of course is adopted.

[1] "Elementary Practical Biochemistry," by W. A. Osborne and W. J. Young; Third Edition; 1930. Melbourne: W. Ramsay. Demy 8vo., pp. 154.

The Medical Journal of Australia

SATURDAY, AUGUST 16, 1930.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract from a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

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A MATTER OF RESPONSIBILITY.

THE method of appointment of an honorary staff of a hospital and the relationship of the staff to the hospital authorities are very similar in Australia and in Great Britain. Hospital authorities realize that the reputation and success of their institution depend in large measure on the competence of the honorary staff. The best possible equipment may be installed, the furnishings may be most modern and every conceivable convenience for the comfort of patients and their friends may be available, infinite pains may be taken by the administrative staff to please and placate the importunate, the nursing staff may be selected with the utmost care, all of this and more may be done, but if the members of the honorary staff be not men or women of the highest integrity, learned in the science and skilled in the art of their respective specialties and keen to prevent and to fight disease, the hospital in question will remain at best a second rate institution. The board of management in choosing a staff is thus faced with grave responsibility; and the appointed staff in its fight against disease must not be unmindful of its relationship to the hospital authority.

The relationship of honorary staff to hospital board is of importance from the medico-legal point of view and should be considered from time to time. Since the honorary medical officer, be he physician or surgeon, is so integral a part of the machinery of the modern hospital, it might be supposed that when a question at law arose, the hospital would be held responsible for the results of treatment, in other words that the medical officer is the servant of the hospital and that damages may be recovered from the hospital for negligence or unskilful treatment at his hands. This has been proved not to be so on more than one occasion. The case of Hillyer *versus* Saint Bartholomew's Hospital, 1909, 2 K.B., 820, may be quoted. In this case an action was brought against the governors of Saint Bartholomew's Hospital to recover damages for the death of a patient who was operated on by one of the surgeons. The judge who tried the case, said: "It is open to argument how far the professional staff of one of our English hospitals comes under the title of employees, but it seems obvious that if the authorities have done their best to secure a competent staff, their liabilities cease there, as they cannot possibly supervise by personal attendance the work of the physicians and surgeons in the wards." Nothing could be clearer than this pronouncement; it has not been challenged. It applies not only to physicians and surgeons, but to honorary medical workers in all other departments.

The question of responsibility is probably of more importance to surgeons than to other members of a hospital staff, and for two reasons. In the first place surgical treatment is possibly more direct than other forms of treatment—the patient is subjected to certain cutting operations, to the cure by mutilation (the term surgical interference is often very apt). In the second place the surgeon may be held personally responsible for the actions of certain other persons. It cannot be too strongly emphasized that once the patient has been anæsthetized and has been brought into the operating theatre, the surgeon is responsible for the whole of the treatment carried out in the theatre. He cannot put the blame for any misadventure on to the shoulders of a nurse or other assistant. Since the surgeon has to shoulder the responsibility, it is obvious that a non-medical hospital administrator has no justification whatever for seeking admission to an operating theatre dur-

ing the progress of an operation. Since admission has sometimes been sought by persons of this type, it may be stated as the opinion of the medical profession that it is inadvisable for any lay individual other than the usual lay assistants employed on the theatre staff, to enter the operating theatre while an operation is being performed or while a patient is being anæsthetized. The only two possible reasons for which non-medical persons might seek admission to an operating theatre are a mistaken sense of duty or responsibility, or idle or morbid curiosity. The operating theatre should be regarded as a "Holy of Holies" where only those entrusted with the life of the patient and devoted to the art of healing may enter.

Current Comment.

PACHYMENINGITIS HÆMORRHAGICA INTERNA.

IN the year 1559 Ambroise Paré recorded the occurrence of chronic subdural hæmatoma in a wounded monarch. Trauma was apparently always regarded as the necessary ætiological factor until in 1856 Virchow described the condition and suggested that it was due to an infection. Since then it has become known as *pachymeningitis hæmorrhagica interna* and the question of its ætiology and pathology has produced considerable controversy. It is a disease mainly of middle age and old age and is uncommon in infancy. Huguenin found that only 2·7% of cases occurred during the first year of life. Edwin Bramwell believed that in infants it was always due to birth injury. In favour of the theory of infection is the fact that the condition is more frequently bilateral than unilateral. Against this it has been remarked that the hæmorrhage is limited by the tentorium which may not be capable of arresting an infective process. Among suggested direct and predisposing causes may be mentioned syphilis, alcoholism, scurvy, rickets, sepsis, hæmophilia and cardiac and pulmonary disease. An interesting feature is the comparative frequency of the condition in hospitals for the insane; in 1,185 *post mortem* examinations at the General Hospital for the Insane at Washington, Blackburn observed it on 197 occasions.

A delicate vascular membrane enveloping the hæmatoma is usually present. Its origin is doubtful; most observers believe that it consists of a layer of organized blood clot, but Virchow believed it to be due to infection and in this he was supported by Osler. Osler stated that Virchow's view that the membrane precedes the hæmorrhage was undoubtedly correct, and pointed out that often the membrane exists without a trace of hæmorrhage. A laminated appearance of the membrane has been described. Greenfield and Buzzard state: "On the inner side of the dura there is deposited a pale, greyish-red or yellowish-red material which by its laminated composition suggests a series of hæmorrhages, some recent and some old and organized."

Ford Robertson suggested that the bleeding comes from a capillary network which he observed in the inner layer of the dura; other authors believe that the vessels of the *pia mater* are responsible, others that the longitudinal sinus may be the source. Whether these views are right or wrong, it is obvious, as Virchow pointed out, that bleeding may take place from the newly formed vessels of the subdural membrane, though the actual origin of the membrane itself may remain in doubt.

In a recent very interesting paper David Sherwood, under the title "Chronic Subdural Hæmatoma in Infants," gives a review of the literature and carefully describes the disease as observed by him in a series of nine cases.[1] In discussing the source of the hæmorrhage Sherwood suggests the possibility of a morbid process affecting the part of the dura covering the pacchionian bodies, with subsequent escape of blood from the superior longitudinal sinus. He points out, however, that bleeding from the pial veins would be more likely to account for the occasional appearance of blood in the spinal fluid.

Putnam recognized two types of *pachymeningitis hæmorrhagica interna*—a vascular or spontaneous type and a reactive or traumatic type. In the spontaneous type hæmatoma was frequently absent, but was invariably present in the traumatic type. In the spontaneous type the subdural membrane was highly vascular with large capillaries, the smallest of which was as large as the largest in the traumatic type. Putnam described large spaces containing blood cells, fibrin and *débris* and lined with mesothelium in the subdural membrane; these spaces anastomosed with each other and with capillaries; they were scarce and much smaller in the spontaneous type than in the traumatic.

Unfortunately the one patient of Sherwood's series examined *post mortem* had died of leptomeningitis caused by *Bacillus coli* and thus the histological appearances of subdural membrane and hæmatoma were somewhat obscured. However, the essential features of the disease were present. Sherwood regarded the *Bacillus coli* infection as a complication and not an ætiological factor.

All of Sherwood's patients were less than twelve months old. One of them had been delivered with the aid of forceps, one had been born by breech presentation, though neither of these had apparently suffered from intracranial hæmorrhage at birth. One other had had symptoms at birth suggestive of intracranial injury, but there was no history of undue trauma. Röntgenological examination of one other revealed a healed fracture of the radius. In no other instance was there any history of injury, but Sherwood remarks that injury cannot be

[1] *American Journal of Diseases of Children*, May, 1930.

definitely ruled out as five of the patients were under the care of foster mothers or in institutions and may have sustained injury without the knowledge of their guardians. He believes that while trauma associated with a bleeding diathesis might feasibly be the cause of the condition, it is more likely that causes vary. It is worthy of note that the blood, though not the cerebro-spinal fluid, of one of his patients reacted to the Wassermann test.

Convulsions and enlargement of the head were the two most constant symptoms in Sherwood's series. In one instance the head increased 5·08 centimetres in circumference during two months, in another 11·75 centimetres during two and a half months. Five of his patients had some degree of pyrexia, but in only one instance did it occur without obvious cause and in no instance did it continue throughout the course of the illness. Sherwood remarks that the frequency of the occurrence of fever seems to demonstrate the susceptibility of these infants to intercurrent infection. Hyperactivity of the deep reflexes was observed in four and rigidity of neck muscles in two instances. There was wasting in three instances. Certain other signs of intracranial pressure were observed on occasions. Retinal hæmorrhages were present in four of seven patients examined. Röntgenological appearances were not distinctive, but provided confirmatory evidence. The most important feature for purposes of diagnosis was the presence in the subdural space of the sanguineous xanthochromic fluid which is pathognomonic of the disease. This fluid may readily be demonstrated by the use of a fine exploration needle. Fluid obtained by lumbar puncture may be bloody, xanthochromic or clear, indicating that sometimes at any rate bleeding occurs in the subarachnoid space. Sherwood suggests that the spinal fluid may become yellow stained or clear after the hæmatoma has become encysted.

The disease is not likely to cause death, but its sequelæ may be serious; the liability of the child to acute infections is an added danger. Of the eight living patients of Sherwood's series three were apparently normal at the time of writing, seven months, four and a half months and three years respectively after admission to hospital; one, seven weeks after admission, was still suffering from active disease; one, four years after admission, was in an institution for feeble-minded children; one was retarded in development and had strabismus six months after admission; one was retarded in development and one underweight and easily became fatigued respectively thirteen months and nineteen months after admission. The treatment resorted to by Sherwood consisted in aspiration, repeated if necessary, by means of a needle inserted through a fontanelle. He does not consider any more extensive operation in infants justifiable, but thinks that possibly the danger of sequelæ might be reduced by removal of the membranes after the active process has subsided.

Sherwood's observations would appear to indicate that recovery from *pachymeningitis hæmorrhagica interna* in infancy is the rule and that the disease is not of very long duration, but it might reasonably be suggested that such apparent recovery merely represents a quiescent stage of longer or shorter duration and that a study of his patients over a period of years might reveal occasional relapses. A report on middle-aged or old-aged patients who have been under observation from the time of the onset of the disease in their infancy should prove of great interest. The low mortality in infancy is all the more striking in view of the fact that in adults the disease is believed by some authors to proceed invariably to a fatal conclusion. Sherwood has not succeeded in casting a flood of light on the ætiology of the condition. Subdural hæmorrhage may feasibly be due to a variety of causes, but it would appear likely that *pachymeningitis hæmorrhagica interna* has a specific infective causation. A distinction should be drawn between the two conditions.

VACCINIAL ENCEPHALITIS.

In another place in this issue are published abstracts of two articles by E. W. Hurst and R. W. Fairbrother and by J. McIntosh and R. W. Scarff on the subject of vaccinial encephalitis. It will be noted that the conclusions of the two sets of authors are diametrically opposed. Pathologists and those specially interested in the subject will do well to study the two articles in question as well as that on acute disseminated encephalomyelitis by J. G. Greenfield, published in the same journal. Since the views of Hurst and Fairbrother are opposed to those held by many observers, it will be useful to refer to some pertinent criticism by McIntosh and Scarff. In the first place the latter explain the failure of Hurst and Fairbrother to produce a meningitis without encephalitis as due to their use of a virus without a high affinity for nerve tissue. McIntosh and Scarff have had to raise a specially active strain. In regard to the statement that the histological appearances in post-vaccinial encephalitis are quite different from those of experimental encephalitis in the rabbit and monkey, Hurst and Fairbrother base their statement on the fact that they were able to produce only a fibrino-purulent meningitis in their experimental work. Histological researches do not bear out the view of Hurst and Fairbrother. Definite demyelination has not yet been produced in experimental vaccinial encephalitis and it has been suggested that this is alone sufficient to show that post-vaccinial encephalitis cannot be due to vaccinia virus. McIntosh and Scarff do not lay stress on demyelination as a distinguishing factor: it is found in several pathological conditions of the central nervous system, and they have seen slight demyelination in vaccinial encephalitis of rabbits and monkeys. The views of Hurst and Fairbrother need confirmation before they can be accepted.

Abstracts from Current Medical Literature.

MORBID ANATOMY.

Mammary Actinomycosis.

HAROLD E. ALBISTON (*The Australian Veterinary Journal*, March, 1930) has examined twenty-six cows' udders affected by mammary actinomycosis. He explains that he uses the term actinomycosis in its broadest sense as applied to all varieties of granulomata. The disease takes the form of chronic indurative mastitis associated with the formation of nodules in the substance of the mammary gland. The disease is slowly but definitely progressive and the infection extends in the direction of the lymph flow. In the early stages nodules contain a small amount of creamy pus in which no "sulphur grains" can be detected. In the later stages the condition becomes more caseous and the typical granules appear in the firm purulent material. Actinomycosis of the udder is essentially a stroma infection, the nodules forming in the intraalveolar or the intralobular connective tissue. In the centre of each nodule is found the colony of the causative organism, surrounded by a mass of amorphous material, more or less acid-fast, which is characterized by a definite differentiation into clubs towards the periphery of the colony. Around the central colony is an aggregation of cells, mainly polymorphonuclear leucocytes, but with a few round cells as well. The alveoli adjacent to the nodule become obliterated as a result of pressure and catarrhal changes occur in the alveoli in the vicinity. There is no secretion from the affected quarters and most of the alveoli are destroyed. The author states that, whatever the true origin of the clubs, the process is in part, at any rate, associated with the nuclei of the polymorphonuclear leucocytes. In seventeen out of the twenty-three instances cultural investigations were carried out and *Staphylococcus pyogenes* was isolated in pure culture.

Tuberculosis of the Heart.

J. G. THOMSON (*The Journal of Pathology and Bacteriology*, April, 1930) reports a case of diffuse tuberculous infiltration of the myocardium in a man, aged forty-one, who was the subject of uveo-parotid fever. At *post mortem* examination miliary tuberculosis of both lungs and both pleuræ was found with some pleural effusion. There were also tuberculosis of the tracheo-bronchial and mediastinal glands, enlargement and apparent tuberculous involvement of the mesenteric glands and massive tuberculosis of the wall of the left ventricle. More than half of the *septum ventriculorum* was involved. The tracheo-bronchial and mediastinal changes were those of tuberculosis in childhood and it is presumed, therefore, that there had been no reinfection. The suggestion is made that the patient's first and only infection led to the usual involvement of the tracheo-bronchial glands and that the lesion spread thence by lymphatic channels directly to the heart. This suggestion is not negatived by the fact that owing to the passage of the lymphatic vessels of the heart into the tracheo-bronchial glands, its acceptance would involve a reversal of the normal lymph flow. An extensive tuberculous arteritis was present and is regarded as having been a factor in the wide extent of the lesions.

Acute Disseminated Encephalomyelitis.

J. G. GREENFIELD (*The Journal of Pathology and Bacteriology*, April, 1930) reports two cases of acute disseminated encephalomyelitis that occurred as a sequel to "influenza." One occurred in a male aged thirty-seven, and the other in a male aged thirty-two years. One patient died after an illness of five days and the other after an illness of seven weeks. In each instance a *post mortem* examination was obtained. The findings are recorded in detail. The lesions were similar in nature to those seen in the encephalomyelitis which sometimes follows vaccination, small pox and measles. The author concludes that these cases support the view that acute disseminated encephalomyelitis is a disease *per se* which may be brought on or directed against the nervous system by certain febrile or exanthematous diseases.

Carcinoma of the Foot.

W. KRESSIN (*Deutsche Medizinische Wochenschrift*, January 3, 1930) remarks that primary carcinoma of the foot is one of the rarest malignant growths in the body. It usually is superimposed on a chronic leg ulcer. In his case the patient, aged sixty-eight, suffered from an atrophic dermatitis closely resembling scleroderma. Ulceration had occurred at an earlier date with subsequent scar formation. Whether the carcinoma developed from the scar tissue or not he was unable to determine. The leg was amputated by Gritti's method with removal of the glands in the groin which were also infected.

Meckel's Diverticulum Within the Layers of the Mesentery.

J. W. STRUTHERS (*Edinburgh Medical Journal*, July, 1930) reports a Meckel's diverticulum which was discovered between the layers of the mesentery of a boy, aged sixteen years. He also describes a similar case which was reported in the same journal in 1911. The diverticulum on dissection after removal was found to communicate with the lumen of the intestine by a minute canal which also lay within the layers of the mesentery. There were no signs of infection in the walls of the diverticulum; in the case previously reported infection of the walls occurred and spread through the walls, causing a fatal result. Owing to the smallness of the communication between the diverticulum and the intestine, the author suggests that the communication might easily be cut off so that the main portion of the diverticulum would remain as an intramesenteric cyst.

Vaccinial Encephalitis.

E. WESTON HURST AND R. W. FAIRBROTHER (*The Journal of Pathology and Bacteriology*, April, 1930) have made an experimental investigation of vaccinial encephalitis in the monkey and the rabbit. They find that vaccinial "encephalitis" can be readily transmitted from rabbits to monkeys by the intracerebral inoculation of virulent material; the resulting lesion consists essentially of a fibrinous hæmorrhagic and polymorphonuclear meningitis and such alterations as may be present in the underlying nervous structures are of secondary importance; they are seen only where the meningitis is most severe and are due, at any rate in part, to disturbances in nutrition consequent on the meningitis and on compression resulting from intense local œdema. It is scarcely possible to imagine a greater contrast between the picture of vaccinial "encephalitis" and that seen in the disseminated encephalomyelitis following vaccination. In the latter disease the meninges are normal or only slightly infiltrated in places with mononuclear cells which have probably drained along the perivascular spaces from the deeper tissues. The authors could obtain no definite evidence that the vaccinia virus, after intradermal inoculation and general dissemination, is capable of exciting an encephalitis, even when a mild trauma is inflicted on the nervous system, either at the time of vaccination or subsequently. It is highly improbable that the virus of vaccinia plays a direct part in post-vaccinial encephalitis in man. The authors hold that the reaction of the central nervous system to the vaccinia virus is to be sharply differentiated from that due to the poliomyelitic virus, in that the one is primarily mesodermal, the other primarily ectodermal. The virus of vaccinia is not neurotropic in the same sense as that of poliomyelitis.

J. MCINTOSH AND R. W. SCARFF (*The Journal of Pathology and Bacteriology*, April, 1930) have studied the reaction of the central nervous system to vaccinia virus. They describe two types of cerebral lesion: meningitis and meningo-encephalitis. The difference between these is one of degree and the reactions produced are in all probability merely an indication of the severity of the infection; there is no sharp line between them. The inflammatory reaction in the brain substance is mainly that of endothelial cells and therefore affects the mesoderm and in particular the reticulo-

endothelial system. They conclude that virulent strains of vaccinia can produce in rabbits a definite meningo-encephalitis after intracerebral, intravenous and intradermic inoculation. The lesions produced are strictly comparable with the visceral lesions in rabbits and with those of post-vaccinial and post-variolar encephalitis in man.

Central Nervous Lesions Produced by Electrical Injuries.

ORTHELLO R. LANGWORTHY (*The Journal of Experimental Medicine*, June 1, 1930) has investigated the abnormalities produced in the central nervous system by electrical injuries. He carried out his experiments on rats. He found that the alternating and continuous currents produced different types of lesions in the central nervous system. Hæmorrhages were common after alternating current shocks and few hæmorrhages were observed in the continuous current group. With both types of circuit at one thousand and at five hundred volts potential severe abnormalities in the nerve cells were observed. These were more pronounced in the continuous circuit group. A uniformly staining, shrunken, pyknotic nucleus was taken as a criterion of nerve cell death. The Purkinje cells of the cerebellum were most susceptible to the current. Injured cells were studied in the dorsal nucleus of the vagus, in the somatic motor group, among the primary sensory neurones and in the olives. Changes in the histological structure of the cells in reference to recovery are discussed by the author. Injury to the cortex of cerebrum and cerebellum occurred on the dorsal surface close to the head electrode. Small cavities were produced, particularly in the cerebral cortex, as a result of the circuit contact. With the continuous and alternating circuits at 110 and 220 volts potential less severe changes were observed in the nerve cells, although hæmorrhages were common in the alternating circuit group. It must be assumed that death in these circumstances was due to respiratory block rather than to actual death of the cells.

MORPHOLOGY.

The Structure of the Thyreoid Gland.

W. F. RIENHOFF (*Archives of Surgery*, December, 1929) has made a study of the gross and microscopical structure of the thyreoid gland. He studied normal glands and those removed from patients suffering from exophthalmic goitre. He used the wax reconstruction method as well as that of maceration and microdissection. He used the former to investigate a larger area of thyreoid tissue than has hitherto been reconstructed in wax. By this means he has been able to visualize the actual spatial relationship not only of the individual follicles, but also of the various regions and to determine the presence or absence of a true lobulation of the gland. The author claims to have demonstrated that the main mass of the thyreoid gland is divided and subdivided into many connected or annectant bars, bands and plates of parenchyma which in turn are composed of individual discrete and discontinuous follicles. There are no distinct and true lobules in the thyreoid gland and it is incorrect to describe it as lobulated. The plates, bands and bars of parenchyma are separated by clefts and spaces normally filled with tissue of mesenchymal origin, such as blood vessels, connective tissue, lymphatics and nerves. They vary greatly in shape and size, the gland being broken up irregularly by the clefts and spaces and these by their connexions form a fenestrated labyrinth in the gland mass. The bars, bands and plates are always connected one with another and the author observed no isolated regions of parenchyma, completely surrounded by connective tissue. He states that, though Williamson and Pearse have stirred up a new interest in the thyreoid, they drew conclusions from occasional and not from serial sections. They assumed a lobulation which does not exist. Wilson adopted the method of reconstruction in wax, originated by Streiff. Both Wilson and Streiff, however, considered chiefly the individual follicle and regarded the internal form of the vesicle as the external form or true shape. For this reason conclusions as to the continued formation of new follicles in the adult, based on irregularities in the form and shape of the follicles reported in the past, are incorrect, because these irregularities occur only inside the follicle. The absence of these irregularities from the smooth, regular, external form of the follicles when dissected out in their entirety, would rather suggest that the probable growth of the gland occurring in the adult is due to the enlargement of follicles already formed rather than to the development of new or secondary ones. The author points out that an embryological basis for the subdivision of the thyreoid has been provided by Norris in his study of the human embryo. After complete separation of the thyreoid from the pharynx, the gland grows rapidly and forms a bilobed, plate-like mass, thick and irregular, ventral to the trachea and in a plane parallel to the long axis of the body. At this stage, according to Norris, there appear in the glandular mass a number of completely closed cavities, at first tiny clefts, which suggest that the cells about them had become pulled apart and that they had apparently resulted from cracks or splitting of the tissue. These cavities increase in size and are brought more closely together. They vary in size, shape and general position in the same and in different fœtal thyreoids. They have no visible content, but possess a distinct, sharp outline. As growth continues, these cavities become confluent, and, finally, as they open on to the outside, they are invaded by the adjacent vascular mesenchyme.

The Axillary Artery.

C. F. DE GARIS AND W. B. SWARTLEY (*American Journal of Anatomy*, Volume XLI, 1928, page 353) studied the axillary artery in whites and negroes. In 512 dissections (256 of each side) 23 patterns of the axillary artery are found. There are as norms in man two diverse patterns, the more disparate occurring more frequently in whites, the more clumped occurring more frequently in negroes. Likewise, the patterns of variations are as a rule more disparate in whites than in negroes. The two principal classes of axillary variations are: (i) bifurcation of arm and forearm arteries from the axillary, (ii) diversities of axillary distribution to the thorax. The distribution to the thorax is essentially segmental, though often widely overlapping, that is, each intercostal space except the first is supplied from two or more axillary sources. Variations or patterns outside the norms are distributed as follows: In 254 dissections of negroes 122 variations (480·3‰); in 258 dissections of whites 69 variations (267·4‰). The numbers of separate axillary branches vary in negroes and whites around the modal values 7 and 8 respectively. Variations or patterns outside the modes are distributed as follows: in negroes 151, in whites 112.

Hæmal Glands.

RUTH E. MACMILLAN (*Anatomical Record*, Volume XXXIX, page 155) has studied the so-called hæmal lymphatic glands of the white rat, guinea-pig and sheep. She found that red lymphatic glands containing blood in the sinuses were inconstant, variable structures in the rat and guinea-pig. No hæmopoiesis was observed in the red glands of the rat, guinea-pig or sheep, although groups of plasma cells sometimes bore superficial resemblance to its early stages. In the blood-containing glands of the rat and guinea-pig there was great variation in the number of demonstrated lymphatic connexions. No lymph channels were found opening into the prevertebral sheep glands. Blood vessels, probably veins, were in free connexion with the sinuses of the sheep glands, but the blood vascular system of the glands from the rat and guinea-pig was that characteristic of lymphatic glands. Large phagocytic cells were in close association with and ingesting a golden pigment, evidently a product of blood destruction. These cells were not found in the prevertebral sheep glands or other glands in which no pigment appeared. The evidence indicates that there are two types of glands which contain erythrocytes in their sinuses: those possessing a wholly hæmal circulation and characteristic of the prevertebral fat of sheep, and those which are merely modified lymph glands containing blood cells.

Special Articles on Diagnosis.

Contributed by Request.

VII.

RENAL TUBERCULOSIS.

TUBERCULOSIS of the kidney and incidentally of the ureter and bladder is a most important disease. For its successful treatment early diagnosis is essential. The first manifestations of the disease are usually very mild and insidious and may continue so for a long while. It is this insidiousness and mildness in a patient not obviously suffering from a severe disease, that disarm the medical attendant. But the disease is steadily progressive and sooner or later involves the ureter and then the bladder with a great aggravation of the distressing symptoms and a much diminished chance of permanent cure. The disease is always secondary to some focus in the body. This focus may be easily detected, for example, in the apex of the lung, in the cervical glands, in a joint *et cetera*; very frequently it is not detected, and may give no evidence of its presence *per se*.

Tuberculosis almost always attacks one kidney and is confined to it for a long while. It may attack any part of the kidney, but almost invariably starts as a caseous area in one or more pyramids. The result is a tuberculous ulcer, which discharges tuberculous *débris* and bacilli into the urine. This is fortunate, as it is thus possible to diagnose the disease very early. Most unfortunately this early diagnosis is not made as often as it should be. The disease then steadily progresses until the whole kidney, the ureter, bladder and eventually the other kidney are all involved.

I have dogmatically stated here the fundamental pathology of renal tuberculosis. I cannot describe any of the many possible variations in its pathology, nor their attendant signs; such a digression would be outside the scope of this paper.

From this brief *résumé* of its pathology let me pass to the diagnosis of renal tuberculosis. Here we can best treat the subject under two heads: (i) clinical diagnosis, (ii) special diagnosis.

Clinical Diagnosis.

Among subjects with advanced pulmonary or joint tuberculosis a certain percentage develop tuberculosis of the genital and urinary organs; often rapidly progressive and rather the expression of a general dissemination, such a dread complication offers little difficulty in diagnosis and little hope of treatment. Such patients are not within the scope of this paper.

Mostly the disease is insidious in patients who have the appearance of good health. As I stated previously, a careful physical examination may detect a present mildly active lesion in the lung, cervical glands or elsewhere, or maybe what appears to be a perfectly healed lesion, for example, an old hip disease or Pott's disease. Most often no lesion can be detected and, beyond some mild failure in the general health, the patient has no complaint beyond his urinary disturbances.

The subjects are usually young or of early middle age. The first and most outstanding complaint is of frequency of micturition. This is most insidious at first and scarcely bothers the patient, but as time goes on, it becomes more insistent and, while diurnal at first, eventually becomes nocturnal as well. At this stage there is a lesion in the pyramidal area in one kidney and let me insist that accurate diagnosis is quite possible at this stage and proper treatment with every prospect of a permanent cure can be undertaken.

The frequency of micturition can be explained in three ways, all of which contribute their share in producing it. (i) The irritative lesion in the kidney produces a reflex polyuria on that side. This has been proved by comparing with the other side by double ureteral catheterization. (ii) The tuberculous urine irritates the bladder and sets up a non-tuberculous cystitis. This is proved by cystoscopy. (iii) There is a peculiar reflex connexion between kidney and bladder, so that a lesion in the former creates an unusual desire to micturate.

If at this stage proper treatment is not undertaken, the disease spreads to the ureter. This is progressively diseased until in time the bladder is involved with a great aggravation of the symptoms.

In the early stages physical examination will disclose no abnormality. A kidney with a tuberculous focus in it cannot be palpated any more than a normal kidney. The whole issue depends on finding the tubercle bacillus in the urine.

When a young or middle aged subject without any apparent cause and while in apparent good health, develops a frequency of micturition with a turbid urine, he must be regarded as having renal tuberculosis until you prove he has or has not. The haphazard administration of reputed urinary antiseptics is quite unjustified. Every urologist sees repeated examples of the misery caused by this unscientific habit. The urine is pale coloured, of somewhat low specific gravity, acid in reaction and contains albumin and a faint haze of pus; this latter may vary in quantity from time to time.

This urine, on microscopical examination, will be found to have none of the usual pus producing organisms, nor can any be grown from it in culture. This combination of events alone is extremely suspicious of a tuberculous lesion somewhere in the urinary tract. It remains now to prove it definitely by looking for the bacillus of tuberculosis. This procedure is a simple clinical exercise in bacteriology; the urine is collected with precaution to exclude any contamination with the smegma bacillus. In a male the glans and preputial folds are carefully and repeatedly sponged. The meatus and *fossa navicularis* are sponged, and the urine passed into a vessel with the prepuce drawn back. In a female the labia are repeatedly sponged and widely separated, the urethral orifice is carefully sponged and the urine drawn from the bladder by a catheter. These precautions have been shown to exclude the smegma bacillus.

The urine is now centrifuged in a high power centrifuge for at least half an hour, the supernatant fluid is withdrawn and several loops of the deposit are spread evenly on a slide and stained by the Ziehl-Neelson method.

The stained slide is now carefully searched with an oil immersion lens for the characteristic acid-fast bacilli. If they are present in any considerable quantity, they will be found in the characteristic clumps which leaves no doubt in the observer's mind that he is looking at the bacillus of tuberculosis. When they are scattered and few in number, then certainly a doubt arises as to the possible presence of the smegma bacillus. From the method of collecting the urine, this contamination is scarcely likely to occur. However, if such a doubt arises it is better to repeat the examination with a fresh specimen of urine some days later and, if still in doubt, to seek the aid of a bacteriologist. Where guinea-pigs can be housed under hygienic conditions, it is wise in a doubtful case to resort to this method of diagnosis. In foreign countries great importance is attached to this test, which is regarded as extremely sensitive and reliable.

For reasons which I cannot discuss now, it seems that here in Australia we do not find the test so accurate. It is easily performed as follows: One to two cubic centimetres of the urinary deposit from the centrifuge are injected into the peritoneal cavity of a guinea-pig and six weeks later the guinea-pig is killed and the organs examined for the characteristic tubercles. One disadvantage of this test is that a delay of some weeks is necessary before the test is complete.

I use this test only when the microscopical findings are negative or doubtful. I inject the same guinea-pig with a dose of urine every two or three days for about six doses. In this way any intermittence in the presence of bacilli in the urine is likely to be overcome. It must be remembered that the tubercle bacillus occurs in the urine in showers. This is readily understood if one realizes what is occurring in the kidney: as the caseous material disinte-

grates it escapes in the urine with its attendant bacilli which may very readily be found. The supply may then diminish for a while until more caseation occurs. It is for this reason that in a suspected case repeated examinations of the urine must be made. Many mistakes are made through neglecting this. In one case of mine the urine was normal for three examinations; in the fourth specimen the bacilli were present in great numbers. If repeated examination of the urine discloses no tubercle bacilli and the result of the guinea-pig test is normal, one may fairly assume that tuberculosis can be excluded.

I have at some length insisted on a strong suspicion of tuberculous disease in every case of insidious frequency of micturition with pyuria, however slight. I have shown that repeated examination of the urine by the microscope is the most important and reliable method of diagnosis. Before passing to a discussion of the special methods of diagnosis, I should like to make brief mention of some clinical manifestations of the disease.

A mild ache in one kidney is not uncommon, but as a diagnostic symptom it is of no value, as it has repeatedly been shown that the aching kidney is often the opposite healthy one. This has been explained by hypertrophy of the kidney with consequent stretching of its capsule to meet the extra work thrown on it.

Mild or severe renal colic may occur from temporary occlusion of the ureter with damming back of the urine under increased pressure or from the passage of clots of blood or caseous *débris* down the ureter. However, it must be emphatically stated that the kidney can proceed to complete destruction without any symptoms worthy of complaint from the patient. And, as a clinical fact, it is noted that pain and discomfort in the renal regions are conspicuously absent, even when the disease is well advanced. When the ureter is thickened and taut with tuberculous disease (even to the thickness of a lead pencil), it may be felt in a thin subject as it crosses the pelvic brim.

In females it can be felt high up on the lateral vault of the vagina and in males the skilled examiner may detect it above the prostate by rectal examination.

Special Diagnosis.

Renal tuberculosis having been suspected from the symptoms and tubercle bacilli having been found in the urine, it is necessary to submit the patient to cystoscopy in all cases. There is no other means of discovering certain fundamental facts which will determine a proper appreciation of the extent of the disease and in consequence a proper mode of treatment. Clinical methods cannot do this.

Cystoscopy discloses whether the bladder is involved or not and, if so, to what extent. It determines whether the disease is still unilateral or whether the other kidney has become diseased. It determines in unilateral cases whether the patient has another kidney and, if so, its functional capacity without a knowledge of which removal of the diseased kidney cannot be undertaken.

In certain complications of the tuberculous process, for example, a superadded mixed pus infection, superadded stone formation in the kidney or bladder, extension of the tuberculous process outside the renal tract, for example, lumbar cold abscess *et cetera*, cystoscopy and pyelography are often quite conclusive.

Cystoscopy and particularly pyelography should be undertaken only by an expert.

No procedure tests the skill of the urologist more than the examination of these tuberculous patients. Moreover, without the utmost skill and caution there is a grave risk to the patient. Injudicious instrumental examination carries with it a serious risk of activating the disease and even of precipitating a miliary tuberculosis.

Conclusion.

In conclusion, let me repeat that if one's suspicions are aroused, repeated examination of the urine should be undertaken. This will, in nearly every case, lead to a diagnosis of tuberculous infection of the urinary tract. It is one's duty then to determine the extent of the disease by careful cystoscopy. Early diagnosis is essential, as the lesion is in one kidney and nephrectomy is now conceded by all authorities as the rational treatment.

REGINALD BRIDGE, M.B., Ch.M. (Sydney), F.R.C.S. (England), F.C.S.A.,

Honorary Consulting Urologist, The Women's Hospital, Crown Street; Honorary Urologist, District Hospital, Balmain; Honorary Assistant Surgeon, Sydney Hospital.

British Medical Association News.

ANNUAL MEETING.

THE ANNUAL MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Darling Building, University of Adelaide, on June 25, 1930, DR. H. GILBERT, the President, in the chair.

Annual Report of the Council.

The annual report of the Council was received and adopted. The report is as follows.

Election.

At the annual meeting held last June, the following were elected:

President: Dr. H. Gilbert.

Vice-President: Dr. C. E. C. Wilson.

Honorary Medical Secretary: Dr. Allan D. Lamphee.

Honorary Treasurer: Dr. W. A. Verco.

Members of Council: Dr. P. S. Messent and Dr. F. St. J. Poole. (Dr. C. F. Drew, Dr. J. B. Gillen, Dr. E. A. H. Russell and Dr. R. J. Verco remained for another year.)

Federal Committee: Sir Henry Newland and Dr. Bronte Smeaton.

At the first meeting of the Council held on 4th July, 1929, the following subcommittees were appointed:

Scientific: The President, Sir Henry Newland, Dr. J. Corbin, Dr. C. F. Drew, Dr. W. A. Verco, Honorary Medical Secretary (Convener).

Lodge and Ethical: The President, Dr. C. F. Drew, Dr. J. B. Gillen, Dr. P. S. Messent, Dr. F. St. J. Poole, Dr. E. A. H. Russell, Dr. R. J. Verco (Lay Secretary, Convener).

Revision of Rules: The President, Sir Henry Newland, Dr. Bronte Smeaton (Lay Secretary, Convener).

Parliamentary Bills: The President, Dr. F. St. J. Poole, Dr. C. E. C. Wilson (Lay Secretary, Convener).

Library: The President, Sir Henry Newland, Dr. P. S. Messent, Dr. C. E. C. Wilson, Honorary Medical Secretary (Convener).

Meetings.

Monthly General.—Nine meetings were held during the year, two of these being clinical evenings at the Adelaide Children's Hospital, and one meeting at the Parkside Mental Hospital. The attendances throughout were satisfactory.

The following programme was carried out:

1929—

July: Clinical evening at Adelaide Children's Hospital.

August: Demonstrations by members of the honorary and resident staff at Mental Hospital, Parkside. Paper by Dr. M. H. Downey on "Some Notes on Malaria Therapy at Parkside."

September: Discussion on "Heart Disease and Pregnancy," with papers by Dr. Frank S. Hone and Dr. W. A. Verco.

October: Evening at the Anatomy School, University of Adelaide, when Professor H. H. Woollard spoke on the work of the Anatomical Department. Demonstrations were given as follows:

(*a*) Dr. C. S. Mead, "Thorax and Cranio-Cerebral Topography."

(*b*) Dr. A. Britten Jones, "The Fascial Spaces of the Hand, Tendon Sheaths in Forearm and Hand, and Bursal Connexions of Joints."

(*c*) Dr. H. R. Pomroy, "Anatomy of Abdominal and Pelvic Viscera."

(*d*) Dr. P. S. Messent, "Anatomy of the Lower Extremity."

(*e*) Dr. A. F. Hobbs, "Anatomy of the Upper Extremity, including the Bronchial Plexus."

November: Dr. I. B. Jose, "Some Impressions of Urological Surgery Gained Abroad." Dr. J. W. Close, "The Pre- and Post-Operative Management of a Urological Case."

1930—

February: Short talk by Dr. R. H. Pulleine on the "Pan-Pacific Surgical Conference." Discussion on "The Early Diagnosis of Cancer of the Stomach," with papers by Dr. C. T. Ch. de Crespigny, Sir Henry Newland, Dr. E. McLaughlin and Dr. Stanley Verco.

March: Dr. F. H. Beare, "A Series of Cases Resembling Laryngeal Diphtheria."

April: Clinical evening at Adelaide Children's Hospital.

May: Listerian Oration, Dr. Fay Maclure on "Fractures and Their Treatment."

Council.—The Council met on thirteen occasions, the attendance being:

The late Dr. John Corbin	7
Dr. C. F. Drew	10
Dr. H. Gilbert	12
Dr. J. B. Gillen	10
Dr. A. D. Lamphee	12
Dr. P. S. Messent	10
Sir Henry Newland	12
Dr. F. St. J. Poole	10
Dr. E. A. H. Russell	11
Dr. Bronte Smeaton	10
Dr. W. A. Verco	10
Dr. R. J. Verco	10
Dr. C. E. C. Wilson	13

Scientific Subcommittee.—The Scientific Subcommittee met once, the attendance being: Dr. John Corbin, Dr. C. F. Drew, Dr. H. Gilbert, Dr. A. D. Lamphee, Sir Henry Newland, Dr. W. A. Verco.

Lodge and Ethical Subcommittee.—The Lodge and Ethical Subcommittee met on twelve occasions, including three conferences with lodge representatives, the attendance being:

Dr. C. F. Drew	12
Dr. H. Gilbert	12
Dr. J. B. Gillen	6
Dr. P. S. Messent	7
Dr. F. St. J. Poole	12
Dr. E. A. H. Russell	7
Dr. R. J. Verco	2

Parliamentary Bills Subcommittee.—The Parliamentary Bills Subcommittee met on four occasions, the attendance being:

Dr. John Corbin	3
Dr. P. T. S. Cherry	2
Dr. H. Gilbert	1
Dr. F. St. J. Poole	1
Dr. C. E. C. Wilson	4

Dr. Frank S. Hone, at the invitation of the Council, also attended.

Federal Committee.

Sir Henry Newland and Dr. Bronte Smeaton represented the Branch on the Federal Committee, Sir Henry Newland attending the meetings at Sydney and Melbourne, and Dr. Smeaton attended the meeting at Sydney.

Representation on Boards.

South Australian Dental Board.—Dr. R. H. Pulleine resigned as one of the Association Representatives on the Dental Board in July last, and Dr. P. S. Messent was appointed in his place.

Metropolitan Infectious Diseases Hospital Board.—Dr. P. T. S. Cherry and Dr. H. H. E. Russell were appointed to act as Representatives of the Association on the Board.

Australasian Medical Publishing Company.—Dr. Bronte Smeaton was appointed in place of the late Dr. John Corbin as Representative of the Branch.

Nurses' Registration Board.—Dr. F. Steele Scott was reappointed for a further term of three years.

Membership.

The membership of the Branch now stands at 397. The number of new members elected was 10, the balance representing the difference between transfers "in and out" after deducting deaths *et cetera*. It is with much regret that the death is recorded of Dr. John Corbin.

Listerian Oration.

The Council invited Dr. Fay Maclure, of Melbourne, to deliver the Listerian Oration for 1930. Dr. Maclure chose for his subject "Fractures and Their Treatment." A large number of members was present. The Council desires to officially thank him for his address.

New Model Lodge Agreement.

The position in regard to the New Model Lodge Agreement is still unsatisfactory and has not yet been finalized, although every attempt has been made by the Council to end the protracted negotiations successfully, but this has been prevented by the indefinite and unsatisfactory attitude adopted by the South Australian Friendly Societies. As a result of a meeting of the lodges, held on December 7, 1929, notice was given to the Council that from May 31, 1930, a rate of 3s. per unit only would be paid in the metropolitan area instead of the agreed rate of 3s. 6d. which has been in existence since 1927. Steps were immediately taken by the Council to prevent this breach of agreement by the lodges.

Group meetings were convened in the various districts in order that lodge surgeons could discuss the position, come to a decision, and place same before the general meeting held on December 17, 1929. The district meetings were fully attended and thoroughly representative. In every case a unanimous decision was arrived at that nothing less than the rate agreed on would be accepted. At the general meeting there was a full attendance of lodge surgeons, and resolutions were carried unanimously confirming those passed at the district meetings, all present agreeing not to accept less than 3s. 6d. per unit. Further resolutions were passed, to the effect that the lodge surgeons in the metropolitan area would loyally support the Council in whatever action they thought necessary to safeguard the interests of members in regard to rates and fees, terms and conditions of the New Model Lodge Agreement, and the friendly societies were also requested to finalize the agreement by January 31, 1930.

Since the general meeting was held several conferences have taken place between representatives of the various friendly societies and the Lodge Committee, which it is confidently hoped will bring matters to a conclusion in the near future. At a fully attended meeting of the lodge surgeons in the metropolitan area, held on Tuesday, May 20, 1930, a full statement of the negotiations and the financial position of the lodges was presented by the Lodge Committee. Resolutions reaffirming the previous decision not to accept less than the present unit rate and of appreciation of the work done by the Council to safeguard the interests of members were unanimously passed.

Jubilee of the Branch.

The jubilee of the Branch was celebrated on Wednesday, June 19, 1929, at the University. Excellent organization by the various committees resulted in the conversazione being a great success and it was considered to be one of the finest functions ever held in Adelaide. His Excellency the Governor (Sir Alexander Hore-Ruthven), Lady

Stonehaven and Lady Hore-Ruthven were present and many leading citizens. A reception was held from 8 to 8.30 p.m., the 700 guests being received by the President (the late Dr. John Corbin) and Mrs. Corbin in the refectory. Demonstrations and scientific exhibits had been arranged and immediately after the reception the guests embarked on a tour of the different departments, the greatest interest being shown in the demonstrations and exhibits. Supper was served later in a large marquee. It is a matter of congratulation that the celebration was so ably carried out and was in every way worthy of the occasion. The Council wishes to place on record its high appreciation of all those who assisted to make the gathering such a success.

Members of the British Medical Association from Overseas et cetera.

Sir Ewen Maclean, a recent President of the British Medical Association, visited South Australia in October last and delivered an address to members at the Prince of Wales Lecture Theatre, University, on "Some Observations on Puerperal Infection." A large number availed themselves of the opportunity of hearing him. During his stay in South Australia a committee consisting of the President, Sir Henry Newland, the late Dr. John Corbin, and Dr. A. D. Lamphee were appointed by the Council to arrange for his entertainment. A letter has been received from the parent Association expressing to the Branch its deep gratitude for the splendid reception given to Sir Ewen Maclean.

Dame Janet Campbell paid a visit to South Australia during October last and in order to give members an opportunity of meeting her the women members of the Branch arranged an informal gathering at the refectory, University of Adelaide. There was a good attendance of members.

Sir Charles Ballance was present at the monthly general meeting in July last and addressed members on "Neurological Surgery."

Professor Hugh Maclean who lectured under the auspice of the Adelaide Permanent Post-Graduate Committee in August, was also entertained by the President.

Adelaide Permanent Post-Graduate Committee.

This committee during the year arranged lectures by Professor Hugh Maclean on August 5 and 7, the attendances being very encouraging. Arrangements were also made for lectures by Sir Richard Stawell and a post-graduate refresher course from May 26 to 31.

Library.

Members are reminded of the facilities available to them as members of the British Medical Association. The medical library is at their disposal and books may be taken out, on certain conditions, if so desired.

Work of Sections.

The Eye, Ear, Nose and Throat Section has held eight meetings during the year, the attendances being very satisfactory. This section consists of fifteen members and shows an increase of one since last year.

The Section of Clinical Medicine met four times during the year, including one at the Out-Patients' Department, Adelaide Children's Hospital, in conjunction with the monthly meeting of the Branch. The attendance during the year has been most encouraging, the average being 34. The membership now stands at 49, an increase of two since last year.

The Late Dr. H. W. Armit.

Dr. H. W. Armit whose death took place on March 13 last, came to Australia in 1914 to become Editor of THE MEDICAL JOURNAL OF AUSTRALIA, which position he had occupied ever since. Dr. Armit laboured unstintingly for fifteen years and his death is a great loss to the profession. Steps are being taken by the various Branches to recognize the work of Dr. Armit in a suitable manner.

British Medical Association Museum.

A good deal of trouble having been taken to collect exhibits of historical interest in connexion with the jubilee conversazione, it was suggested that a museum where such exhibits, and others, could be shown should be established in connexion with the Association. Sir Joseph Verco has donated to the Branch a large cabinet with a considerable number of curios, medical and surgical, at present in his home. He also undertook to store any gifts to the museum and keep a catalogue of them as they were sent to him until such time as the Branch could place them in its own building. The Council appreciates the gift of Sir Joseph and has accepted it on behalf of the Branch.

Building for the Branch.

The Council has had under consideration during the year the question of a building for the Branch, but it was thought that the time was not opportune at present. It is hoped, however, that definite steps will be taken in this direction in the near future.

Income and Expenditure for Year ended December 31, 1929.

	£ s. d.	£ s. d.
To British Medical Association, London	491 13 7	
Due on Unpaid Subscriptions	24 4 6	
		515 18 1
„ Australasian Medical Publishing Company	476 8 5	
Due on Unpaid Subscriptions	23 15 0	
		500 3 5
„ Lister Medal		1 14 2
„ General Expenses—		
Telephone	30 10 4	
Exchange	9 13 0	
Rent	50 0 0	
Postages and Telegrams	33 13 2	
Stationery and Printing	34 1 10	
General	58 6 11	
		216 5 3
„ Salary		350 0 0
„ Federal Expenses	18 16 3	
„ Federal Capitation Fees	39 12 0	
		58 8 3
„ Depreciation		16 4 3
„ Balance		43 16 4
		£1,702 9 9

	£ s. d.	£ s. d.
By Medical Certificate Books		1 0 3
„ City Subscriptions	995 14 6	
„ Country Subscriptions	605 14 0	
„ Accrued Subscriptions	79 6 0	
		1,680 14 6
„ Interest		20 0 0
„ Sundries		0 15 0
		£1,702 9 9

Fourth Session of Congress.

An invitation by the Branch to hold the next Australian Medical Congress, Fourth Session, in Adelaide, in 1932, was conveyed to the Federal Committee, but was subsequently withdrawn in favour of Western Australia at the Special General Meeting, held March 13, 1930.

Federal Council.

At a special general meeting of the Branch held on March 13 last, a resolution, "That this Branch is in favour of the formation of a Federal Council of the B.M.A. in Australia," was carried, and the draft of the Memorandum and Articles of Association was approved and adopted.

(*Signed*) H. GILBERT,
President.

Financial Statements.

The financial statements, as submitted by the Honorary Treasurer, Dr. W. A. Verco, were received and adopted. The statements are published herewith.

Election of Office Bearers.

Officers for the ensuing twelve months were elected as follows:

President: Dr. C. E. C. Wilson.

Vice-Presidents: Dr. A. V. Benson, Dr. Rupert E. Magarey.

Honorary Medical Secretary: Dr. A. D. Lamphee.

Honorary Treasurer: Dr. W. A. Verco.

Library and Fund Account, December 31, 1929.

	£ s. d.		£ s. d.
To University of Adelaide Library Grant ..	50 0 0	By Balance brought down, December 31, 1928	386 15 4
„ Balance carried down	453 5 5	„ State Savings Bank Interest	7 15 1
		„ Transfer from General Fund Accounts, 213 Full at 10s. and 9 Half Members at 5s. ..	108 15 0
	£503 5 5		£503 5 5

General Fund Account.

	£ s. d.		£ s. d.
To Library Fund Account	108 15 0	By Balance brought down, December 31, 1928	2,826 3 0
„ Balance carried down	2,800 4 4	„ Amount transferred from Federal Committee Capitation Grant	39 0 0
		„ Amount transferred from Income and Expenditure Accounts, December 31, 1929	43 16 4
	£2,908 19 4		£2,908 19 4

Balance Sheet as at December 31, 1929.

LIABILITIES.	£ s. d.	£ s. d.	ASSETS.	£ s. d.	£ s. d.
To Subscriptions paid in advance ..		1 14 0	By Plant and Fittings	162 3 6	
„ British Medical Association ..	81 18 8		*Less* Depreciation	16 4 3	
„ THE MEDICAL JOURNAL OF AUSTRALIA	79 8 11				145 19 3
		161 7 7	„ Investments—		
„ Library Fund		453 5 5	Commonwealth Loan (5%, 1948)	403 12 0	
„ Sundry Creditors		89 5 2	British Medical Hall Company, Limited	1,850 0 0	
„ General Fund		2,800 4 4			2,253 12 0
			„ Library Fund—		
			Delineascope	55 2 10	
			Kodascope	79 10 0	
					134 12 10
			„ Lister Medals and Dies		21 3 4
			„ Savings Bank (Library Fund)		113 7 7
			„ British Medical Hall Company, Limited, Loan		450 0 0
			„ Subscriptions owing		88 1 0
			„ Stocks—		
			Medical Certificate Books ..	4 18 0	
			Hospital Forms	1 1 2	
					5 19 2
			„ British Medical Hall Company, Limited		200 0 0
			„ Cash in Hand	7 3 11	
			„ Cash at Bank	85 17 5	
					93 1 4
	£3,505 16 6				£3,505 16 6

W. A. VERCO, Honorary Treasurer.
WALTER C. DOBBIE, Lay Secretary.

Audited and found correct according to the Books and Vouchers.

MUECKE, WILTSHIRE & Co.,
Chartered Accountants (Australia),
Auditors.

Adelaide, May 19, 1930.

Members of Council: Dr. J. B. Birch, Dr. R. G. Burnard, Dr. E. Britten Jones, Dr. F. L. Wall.

Delegates to the Federal Committee: Sir Henry Newland, Dr. Bronte Smeaton.

President's Address.

DR. H. GILBERT, the retiring President, delivered his President's Address (see page 217).

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Medical Society's Hall, East Melbourne, on May 7, 1930.

Infant Feeding.

DR. GUY SPRINGTHORPE read a paper entitled: "Natural Feeding" (see page 221).

DR. HILDA E. KINCAID read a paper entitled: "The Principles of Artificial Feeding" (see page 222).

DR. S. W. FERGUSON read a paper entitled: "Feeding and Management of Children after Weaning and the Bottle Age" (see page 226).

DR. A. P. DERHAM thanked the readers of three very interesting and convincing papers. Regarding the subject of Dr. Kincaid's paper, he thought that the need for giving mothers and nurses detailed instructions in writing could not be stressed too much or too often.

In teaching students and nurses Dr. Derham had adopted the use of slogans to remind them of essentials. For instance the keynote of the practice of feeding must be simplicity, so long as simplicity was consistent with a correctly balanced diet. The second cardinal principle was safety, that was to say, when in doubt, give a feeding that would not involve risk of upset, particularly from overfeeding. The third was slowness in increasing or altering the mixture when all was going well, and, finally, speed in taking action in the presence of an upset or the risk of one. In general his practice had been to give a safe mixture in sufficient quantity and to let the baby take as much as it wanted at each feeding, within certain rather wide limits. This method seemed rough and ready, but it had worked well in practice.

Dr. Derham said that he had found it easy to produce upsets due to fat indigestion, owing to cow's milk containing a greater percentage of fat than the usual 3·5%. Three successive samples from one well known dairy had contained over 4% of fat. He also thought it was advisable to sterilize all milk used for feeding infants, not only to destroy the intestinal group of organisms, but also tubercle bacilli which had been found in a certain percentage of milk samples in Melbourne. Although boiling for fifteen minutes did not certainly kill tubercle bacilli, it probably cramped their style.

DR. JOHN DALE expressed disagreement with Dr. Derham's last remarks. Bacteriological tests of samples from the three largest milk supplies in the City of Melbourne had given the following average counts of *Bacillus coli communis*: In four hundred odd samples *Bacillus coli* had been found in 0·01 cubic centimetre in only 17% of samples. In two other series the figures were 35% and 45% respectively. From this point of view it was good advice to advocate boiling, but he thought that the risk of infection from bovine tubercle in Melbourne's milk supply was negligible. The routine examination for tubercle bacilli of many hundreds of milk samples in New South Wales had revealed only about 1% of samples infected, compared with about 7% in a similar series in England. Dr. Dale was not convinced that bovine tuberculosis was a source of much harm and he thought that it might be valuable as an immunizing agent. With regard to the fat content he was surprised at Dr. Derham's figures, as a large series of milk samples in Melbourne had averaged between 3·5% and 4% over a period of a year. He considered it significant and important that the papers had emphasized the psychological aspect of feeding both infants and children.

DR. F. KINGSLEY NORRIS expressed his appreciation of the papers in which an immense amount of ground had been covered. He mentioned the not uncommon inanition fever in new-born babies due to lack of carbohydrate and water, which was frequently mistaken for pneumonia. In Victorian nursing homes and private hosiptals new-born babies and their mothers were often seriously neglected, due to lack of interest in the baby's dietetic welfare.

The value of test feedings in infant welfare centres was minimized because the tests were carried out under the worst possible conditions. One test feed under such conditions was often misleading and might even be dangerous.

Dr. Norris did not agree with the observance of a rigid eight hours interval at night; frequently not enough allowance was made for the peculiarities of the babe itself. It was impossible to make cow's milk closely resemble breast milk and many of the difficulties of infant feeding were due to this attempt. He agreed with Dr. Derham in his insistence on giving feeding details in writing. He preferred commencing with lightly cooked rather than raw egg, as the latter had been proved to be less digestible. Finally, he considered that the most difficult problem in infant welfare was the care of the red-haired only child with the grandmother living in the house.

DR. H. BOYD GRAHAM supported the idea of writing all instructions in detail and he considered that the interval of feeding should be decided on the merits of each particular case. Referring to Dr. Vera Scantlebury's infant feeding tables, he said that he seldom used Tables A1 and A2 or B1 and B2, but frequently started milk 2, water 1, and worked up to milk 3, water 1, with sugar to about 6·5%. When using mixtures of low caloric value, it was necessary to give larger quantities of fluid and if fat were added to increase caloric values, it sometimes led to fat indigestion. Many babies did not tolerate 7% of sugar and it was safer to keep between 5·5% and 6·5% and to be wary when the percentage was over 6.

Dr. Guy Springthorpe, in replying to the discussion, agreed with Dr. Norris in condemning the "peace at any price" practices applied to infant feeding in some private institutions. He also agreed that one test feed was useless. Although the ideal feeding interval did vary in different cases, there was an optimum interval at which a majority of babies did best. Although he did not use so-called humanized milk himself as a routine, it was a fact that various forms of humanized milk had been used with remarkable success under the direction of Sir Truby King over a long period of time.

In reply, Dr. Hilda Kincaid said that she considered that the boiling of milk was desirable for the prevention of enteric diseases rather than of tuberculosis. As tested by the Melbourne City Council, the milk they obtained from the Talbot Farm seldom showed more than 3·5% of fat during the last twelve months.

While agreeing with the criticism of certain private hospitals, she considered that the puerperium was excellently managed in Melbourne public hospitals.

Regarding the test feedings done in the baby health centres under her control, it was the practice to commence complementary feedings on the results of one test feeding alone, but only if the baby failed to gain on breast milk over a period supported by the results of several test feeds. In spite of Dr. Norris's objection, she recommended the eight-hour interval at night as most generally suitable. In her experience fat had been a much more frequent cause of upset than sugar excess.

In reply, Dr. Ferguson said that he considered weaning should be complete by nine months. In the giving of eggs every child had an individuality which had to be considered. He referred to the pernicious practice of giving white of egg to babies suffering from diarrhœa. With regard to the use of undiluted milk, it was necessary to consider the digestion "curve" of human and cow's milk curd, especially raw milk, the cow's milk curd taking a

much longer time to digest and pass on into the duodenum. Boiling the milk or pasteurizing it made no difference to this digestion time, but milk simmered in a double vessel yielded a fine flocculent curd which was more easily digestible. The advantages of simmering milk heavily outweighed the disadvantages. No unsimmered milk had been used for feeding infants in the Children's Hospital during the last few years and in consequence almost no protein curds were seen in stools.

One of the main principles of artificial feeding was the need for a higher protein percentage than that of breast milk. He never commenced feeding a healthy baby with less than equal parts of milk and water, but it might be necessary to skim this.

He did not approve of the routine use of lactose in artificial feeding. Lactose in a cow's milk medium was easily the most fermentable of all the sugars and it was found that the child would tolerate a mixed carbohydrate better than lactose. A similar advantage was gained by diluting the mixture with barley water, even in the early months of life, and he recommended this in nearly every case.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at Geelong on March 8, 1930.

Maternal Mortality.

DR. MARY DE GARIS read a paper entitled: "The Meaning of Maternal Mortality" (see page 228).

DR. JOHN DALE said that the paper showed an original point of view which might be helpful and of real significance. He thought that Dr. De Garis was right in saying that doctors reduced the death rate in midwifery. It was true that maternal mortality was an occupational one and all was not right with the health of the young women of the world, but he thought that Dr. De Garis was rather vague in her description of the underlying causes.

DR. GEORGE COLE said that the State Health Department did not take any active part in reducing the maternal death rate. If the practising profession could give a lead as to the underlying causes, their lead would be followed. The subject was one that still required a large amount of thought and investigation.

In reply Dr. De Garis said that it would not be possible to give her arguments in full within a reasonable time. She regarded errors in diet as the most common cause of the average suffering of labour and foreign bodies in the teeth as the most common cause of serious morbid conditions. It was within the past twenty to twenty-five years that root filling had become general and it was since the women so treated had come into child bearing, that the maternal death rate had risen. She had developed her arguments more fully in a little book on the theory of obstetrics which she hoped to publish at a later date.

Surgery of the Bile Ducts.

DR. CLIVE H. R. JAMES read a paper entitled: "The Surgery of the Bile Ducts" (see page 231).

DR. VICTOR HURLEY congratulated Dr. James on his paper; it illustrated the value of detailed records of work done as compared with essays culled from text books.

In operating on the gall bladder Dr. Hurley usually used the right paramedian incision, starting above in the midline and running slightly obliquely downwards to finish one to one and a half inches to the right of the umbilicus. The subjacent muscles were severed in the same direction. This incision had several advantages. The upper part in the mid-line gave access to the common bile duct; it allowed in most cases a direct inspection of the appendix, and its obliquity minimized the damage to the transverse fibres in the posterior sheath of the rectus muscle. Before operations on the biliary passages Dr. Hurley found that administration of fluids was helpful in the form of one to two pints of normal saline solution given under the pectoral muscles, or the intravenous injection of a 10% solution of glucose. In giving this injection care was necessary to avoid sloughing of the subcutaneous tissues due to leakage which might be even worse than that resulting from the arsenical preparations. Administration of carbohydrate in the form of two teaspoonfuls of glucose and two biscuits the night before and again one hour before operation, in the absence of glycosuria, reduced postanæsthetic vomiting. In his own experience Dr. Hurley had found the gall bladder absent in two cases and the cystic duct in one. Moynihan had operated on the common duct in four cases in mistake for the cystic duct which had been absent. Jaundice had developed on about the fifth day and the common duct had been restored by operation. The patients had recovered. Dr. Hurley relied on manual rather than instrumental examination of the cystic and common bile ducts. Walton advised opening the cystic duct close to the common bile duct and examining both through this opening. Certain cases were much more safely handled in stages. It was unwise to attempt cholecystectomy in the presence of severe cholangitis. The stone could be removed at the first operation and the gall bladder later.

Cholecystography was becoming more and more reliable, but Dr. Hurley preferred to trust definite clinical evidence when X ray examination did not indicate a stone. In his experience absence of X ray shadow due to the dye always indicated a pathological condition of the gall bladder. In a recent case no dye shadow appeared, but a stone measuring one by two inches had been removed at operation.

Referring to the putty-like masses passed by Dr. James's third patient, Dr. Hurley said that this phenomenon was the result of a trick resorted to by quack practitioners. Large quantities of olive oil were administered followed by a saline purge of more than usual efficiency. The resulting stone-like bodies tended to liquefy on being kept, much to the patient's dismay. The absence of bile drainage in the first few days after operation was not uncommon with very sick patients and was comparable with postoperative suppression of urine. Cholecystography by the dye method was not safe in deeply jaundiced patients because they frequently became very ill as a result. In Dr. Hurley's experience pancreatitis was a not uncommon sequela of operations on the gall bladder, probably owing to the discharge of infected material into the pancreatic duct.

DR. LESLIE E. HURLEY expressed his appreciation of the paper and agreed in the value of close discussions of actual cases.

Referring to the absence of cardiac displacement in the third patient Dr. Hurley said that this was not an uncommon finding even with large amounts of pus in the right pleural cavity, due no doubt to the fixation of the mediastinum by adhesions. Absence of the gall bladder was normal in the horse and the elephant and after its removal the intrahepatic ducts in the human being seemed to dilate in a compensatory way. Absence of the gall bladder was probably a very rare phenomenon in the human being. Regarding the site of stone formation and the phenomenon of biliary colic after the removal of stones the question arose as to whether a stone had been left behind or had formed after operation or whether the colic was due to some other cause. In the Mayo Clinic there were records of sixty patients who had suffered from colic after the removal of stones and in half of these cases no further stones were discovered. The cause in these cases was probably intermittent obstruction due to kinking. The vast majority of stones were formed in the gall bladder, due to the relatively greater concentration of bile there, amounting to ten times the concentration in the ducts. A small amount of gall bladder mucous membrane left behind at operation was sufficient to cause concentration and stone formation. The whole of the gall bladder should be removed at operation if possible.

Referring to the patient in whom auricular fibrillation was associated with gall bladder disease, Dr. Hurley said that this was a well recognized relationship and that the fibrillation sometimes disappeared after the removal of the stones.

Regarding Graham's test, failure to show a dye shadow might be due to factors other than gall bladder abnormality. The dye might not be absorbed from the alimentary canal and the liver might fail to secrete the dye so

absorbed. He had seen several patients in whom X ray examination had shown no dye shadow in the gall bladder, but no gall stones were found at operation. On the other hand, gall bladders containing stones might fill and empty normally with the dye test. Recent investigations seemed to show that no test of liver function yet elaborated would reveal liver damage involving less than four-fifths of the liver substance. In gall stones and gall bladder disease generally there was nearly always evidence of hepatitis and extensive liver damage, especially in long standing disease, and this made the patients less suitable as subjects for ordinary anæsthesia. The method of inducing anæsthesia by splanchnic block should be further exploited. The administration of glucose before operation had a well established value, as a liver well stored with glycogen before operation was better able to withstand possible toxic damage by anæsthetics.

DR. KENNETH CROSS congratulated Dr. James on his paper and confirmed Dr. Hurley's remarks on the non-displacement of the heart in some cases of right-sided empyema.

A right lateral X ray view would have been helpful in Case III. Fluid was often confined anteriorly to the interlobar plane, due to adhesions, and ordinary needling posteriorly would not reveal its presence in such case.

DR. F. L. DAVIES expressed his appreciation of the paper. It was sometimes very difficult to anæsthetize patients for operations on the gall bladder. Unless the patient was very ill, ether was a quite safe anæsthetic and was preferable because it afforded greater relaxation and was an advantage to the surgeon, though possibly a little less safe for the patient. Dunhill had combined ether anæsthesia with infiltration of the area with urea and quinine. In this operation sewing up was difficult and if adequate relaxation could be given, convalescence was improved. In the case of very sick patients infiltration of the wound area with "Novocain," with hyoscine prenarcosis, followed by nitrous oxide and oxygen anæsthesia, gave very good results. Recently two patients had been operated on for malignant disease of the stomach under this form of anæsthesia and had had a very good convalescence.

Dr. Davies preferred nitrous oxide to ethylene. He feared the possibility of accident with ethylene and said that nitrous oxide was still used to a greater extent than ethylene. He considered that ether was still the best anæsthetic for patients not desperately ill.

DR. J. F. WILKINSON expressed his appreciation of the very interesting discussion of an interesting paper. He was struck by Dr. Victor Hurley's preference of clinical to X ray evidence of gall stones. Even visual evidence at operation was misleading and the surgeon was sometimes tempted to leave *in situ* an apparently normal but actually diseased gall bladder.

The ideal method of giving the dye for the X ray examination was intravenously, but this was not devoid of risk. The effects might be uncomfortable and in most cases the oral method of administration was satisfactory. It was well to repeat the oral test before basing a conclusion on normal findings and even then the intravenous method could be used.

In his experience in some cases there had been a definite relationship between gall bladder disease and cardiac abnormality such as auricular fibrillation and *angina pectoris*. A patient had been sent to him with a diagnosis of recurring *angina pectoris*; he had been proved to have gall stones which were removed by operation and the cardiac symptoms were cured.

Dr. Wilkinson said it was easy to detect faked gall stones as, if kept for a few days, they melted away into their original oily constituents. If broken down in a mixture of equal parts of alcohol and ether true gall stones showed typical cholesterol crystals.

Failing liver function was a strong argument for early operation for gall stones. When operation was delayed, with resulting liver damage, the patient frequently went down hill after operation and died in a week or ten days owing to failure of liver function. Delay carried with it this great added risk and also the risk of malignant disease.

Dr. Wilkinson had not seen a case of absence of the gall bladder, but he had seen a case so diagnosed by a distinguished London surgeon in which the liver and gall bladder containing stones were eventually found on the left side.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Barnett, Harry Leston, M.B., Ch.M., 1923 (Univ. Sydney), 246, Wardell Road, Marrickville.

Gunther, Carl Ernest Mitchelmore, M.B., 1930 (Univ. Sydney), Royal South Sydney Hospital, Zetland.

Obituary.

WILLIAM ISAAC BOYES.

DR. WILLIAM ISAAC BOYES whose death was announced in these pages on June 28, 1930, was the son of the late John Boyes, of Parkville, Victoria. He was educated at Scotch College, Melbourne, and entered the University of Melbourne in 1880 as an undergraduate in the Faculty of Arts. He graduated as Bachelor of Arts in 1883. In 1884 he embarked on his medical course and succeeded in gaining honours at graduation in 1888. He was straightway appointed resident medical officer at the Melbourne Hospital and remained there for two years. He went to England for post-graduate study and became a member of the Royal College of Surgeons of England in 1892. He then spent two or three years in Europe doing special work. After his return to Australia he took up practice in Wangaratta and remained there until 1927, when his health failed him and he retired to live quietly in South Yarra. He was for many years senior honorary medical officer of the Wangaratta Hospital and he also acted as health officer for the Borough and Shire of Wangaratta and for the Shires of Oxley and North Ovens. During the world war he offered his services, but they were not accepted. Boyes was a cultured man; his chief delights were literature and music. He gave abundantly of all that was in him to those amongst whom he ministered, and he reaped his reward in their esteem and affection. To his family the sympathy of many is extended.

Dr. T. Cherry writes:

William Isaac Boyes was a distinguished graduate in arts and medicine of the University of Melbourne. After serving as resident at the Melbourne Hospital in 1890, he spent nearly three years in London and on the Continent. In 1894 he began practice at Wangaratta, was appointed honorary physician to the hospital and soon took a leading place in the profession in the north-eastern district. About six years ago he became aware of indications of failing health and returned to his early surroundings and friendships in Melbourne.

Boyes set the highest standard of work and ethics and also exerted a steady influence in the development of the local hospital and its nursing school, taking a characteristic interest in the subsequent careers of his patients and nurses. But in addition he was also a scholar of the type that has maintained the tradition of culture among medical men from the times of the Greeks. His degree in arts and subsequent experience in a public school made it natural for him to employ his leisure hours in working at half a dozen languages. Of late years Italian literature became his chief hobby. Another aspect of this culture is seen in his efforts to enlist local support for the University Conservatorium and in arranging visits to Wangaratta of Melba, Paderewski and many others. A singularly happy family life completes this picture. His home was the centre of many philanthropic and church activities, in regard to which he used to say that such things did

best when he left the management in the hands of his wife. No higher testimony to his life work could be desired than the fact that over eight hundred letters were received by his family within a few days of his death. It is a privilege to the writer to add his word from the memories of forty-six years.

JACK KENNETH DARTON.

WE regret to announce the death of Dr. Jack Kenneth Darton which occurred as the result of a motor accident at Baulkham Hills, New South Wales, on August 7, 1930.

ALFRED H. BENNETT.

WE regret to announce the death of Dr. Alfred H. Bennett which occurred at Adelaide on August 9, 1930.

Correspondence.

FRACTURES.

SIR: It was impossible to read Mr. Corlette's article on fractures in the March issue of *The Journal of the College of Surgeons of Australasia* without realizing that its author was a master of the art of treating fractures. The clear and concise advice, the wealth of detail, the exact instructions, all obviously the result of long and keen observation, make it a most valuable article for the young practitioner seeking enlightenment in difficult situations.

Nevertheless, as one who belongs to the Hamilton Russell school of thought, I would like, with the very greatest respect, to take issue with Mr. Corlette on certain points. Mr. Corlette, I think, dismisses Mr. Russell's method of treating fractures of the thigh a little too brusquely. Mr. Russell's method was involved after prolonged observation and thought on fractures. It is not merely a convenient method of slinging fractured thighs, it is the technical expression of a great principle.

This principle has to do with the action of muscles on the broken fragments. In this matter there are two schools of thought. One, the orthodox school, believes that, when a fracture separates a muscle group from its opponents, the muscle group attached to the proximal fragment gradually retracts and the distal fragment must be placed in a position which will coincide with that into which the other fragment has been drawn. This is the school which has dominated for a very long while the treatment of fractures. It is the school obviously to which Mr. Corlette belongs, and he bases a good deal of his teachings on its tenets.

The other school, headed by Mr. Hamilton Russell, takes an exactly opposite stand. It believes that if the limb is placed in a position of physiological rest that the action of muscles as a deforming force can be ignored. In a recent article[1] I reviewed this belief in the light of modern physiological work on muscle action and showed that a series of cases treated by a technique based upon it gave good results. Recently Professor W. A. Osborne, in discussing the same matter, said that Mr. Russell's views had "strong physiological support." One would therefore like to refer to this school as the physiological school. The essence of its belief is that if a fractured limb is placed comfortably in a position of rest that "every muscle and muscle fibre will cooperate in the endeavour to preserve the position to which it has always been habituated and the last thing a muscle will do will be to abuse its liberty by displacing a fragment into an unnatural and unaccustomed position."[2]

It is therefore obvious that, with such widely differing principles, the technique of one school is hardly likely to appeal to the other. Mr. Russell believes that all fractures of the thigh may be treated in the "position of rest" that he describes, and his apparatus is designed to swing the leg comfortably in that position. Mr. Corlette believes that fractures in different parts of the thigh should be treated in different positions according to the pull of unopposed muscles on the proximal fragment. For instance, he treats fractures of the upper third of the thigh in a position of wide abduction, and some of his apparatus is specially designed to allow this to be done. Plainly, then, it is useless to compare the varying techniques. The first thing to do is to compare the varying principles. In this respect those of the physiological school consider that they have an advantage over those of the orthodox school, in as much as most of them were originally trained in "orthodox" methods and later changed their views to those of the physiological school. On the other hand, the members of the orthodox school apparently have never considered any other but "orthodox" opinions. At all events it is very difficult, in any article by the great writers on fractures, to find a reference to any other principle but that dogmatic one which has been handed down for generations. One wonders if such men as Scudder, Hey Groves or Corlette have ever studied Hamilton Russell on fractures, or Sherrington on muscle tone.[4] One wonders, further, whether having done so, they would be prepared to give a practical trial to their principles.

Yours, etc.,

C. CRAIG,

Surgeon-Superintendent,
Public Hospital, Launceston.

Public Hospital, Launceston.
June 3, 1930.

References.

[1] C. Craig: "A Series of Fractures of the Long Bones Treated by the Methods of R. Hamilton Russell," THE MEDICAL JOURNAL OF AUSTRALIA, December 29, 1928.

[2] W. A. Osborne: "Some Applications of Recent Physiology to Surgery," "Proceedings of the First Pan-Pacific Surgical Conference, Honolulu, August 14-24, 1929."

[3] R. Hamilton Russell: "Papers and Addresses in Surgery," page 282.

[4] C. S. Sherrington: "Postural Activity of Muscle and Nerve," *Brain*, 1915, Volume XXXVIII, page 191.

MODERN VIEWS ON SOME OBSTETRICAL AND GYNÆCOLOGICAL PROBLEMS.

SIR: I wish to reply to Dr. Ralph Worrall's criticism of two points in my recent paper.

In regard to (i), treatment of cancer of the cervix, I would agree with Dr. Worrall to the extent of changing the word "most" to "many" and would admit that my outlook perhaps is somewhat clouded through having seen at various clinics only those patients who present themselves for examination on account of some complication which has arisen as a direct result of the operation. Those who have remained well, I have not seen at these clinics. Had I Dr. Worrall's surgical experience, perhaps I would feel as he does, that the sentence is a misstatement.

Dr. Worrall states that "radium cannot show anything like Bonney's 50% of permanent cures following operation." But he does not state whether this percentage is the "absolute cure rate" or the "cure rate" of operable cases. Statistics are unsatisfactory, but I can quote the following to show my authority for disagreement: The "absolute cure rate" in extended operations is given as 19·1%, this figure being the average from twenty published tables. The "absolute cure rate" with radium and X rays is given as 16·3%, this figure being the average from seventeen published tables. The "cure rate" of operable cases by operation is given as 35·6% and the "cure rate" of operable cases by radium and X rays is given as 34·9%, both of these figures being given from the same tables.

Dr. Worrall also states that if patients would apply for treatment at an early stage, the mortality should not be higher than 8%. If the same thing held and the case were treated by radiological means, the primary mortality would be nil and the cure rate would at least equal that of surgery, inasmuch as the glandular involvement, the curing of which is the main radiological problem at the moment, would be small.

In regard to (ii), excessive uterine hæmorrhage, Dr. Worrall appears to associate all such patients with chronic infection of the uterus and appendages. I agree that a percentage are covered by this description, but recent histological work has shown that, apart from tubal inflammation, such chronic inflammatory conditions are rare.

Dr. Worrall states that radium leaves untouched the septic focus in the cervix and does not exclude the danger of cancer. As I see it, radium cures the cervicitis, when present, and acts as a prophylactic in preventing the occurrence of cancer.

In regard to Dr. Worrall's statement that radium acts by atrophying the ovaries, I have not yet found proof that this is so and some authorities hold that its action is solely on the uterus.

A horrible picture is drawn by Dr. Worrall of the results of radium treatment, especially when pelvic inflammation is present. But this picture should never be seen, for radium is contraindicated in the presence of pelvic inflammatory conditions.

In conclusion, finality as between radium and surgery has not been reached and for reasons already given radium seems to me a much more useful therapeutic agent than Dr. Worrall would allow.

Yours, etc.,

KENNETH WILSON.

Wickham Terrace,
Brisbane.
July 17, 1930.

WORKERS' COMPENSATION INSURANCE PRACTICE.

SIR: I wish to record the following experience, as an example of unfair tactics on the part of one of the leading Workers' Compensation insurance companies.

In May this year a suburban practitioner referred an injured worker to me, as a consultant, for opinion and further treatment. My opinion was given and treatment outlined which was estimated to extend over a period of six weeks or more under my weekly supervision.

I saw nothing more of the patient. Two months later the practitioner met me by chance and inquired how the patient was getting on, as he had not seen him and presumed he was attending regularly at my rooms. He was surprised when I told him how matters stood. I then wrote to the man and he came to see me. What had happened was that he had taken my report to the medical referee of the insurance company, who had poo-poo-ed the line of treatment suggested by me, and ordered him to embark on an entirely new line, which by the way had involved the eradication of twenty-four apparently good teeth to cure his backache. When the patient demurred against the change, he was told that: "When you are with us you must do as we wish," and as he put it, "I thought that as they were paying my maintenance I had better let them have their own way." That his lesion was still as far from recovery as it had been two months previously gives point to the story, though it is not relevant to the issue.

This is not by any means the first experience of the same nature I have had, but my previous protests made directly to the medical referee have been in vain. I write this with the idea that if others have had similar experiences, surely some action can be taken to counteract this violation of both the written and unwritten laws. The plain fact is that injured persons and very often their medical attendants do not know that the patient has absolute right to seek and receive medical treatment where he likes. This ignorance of his legal rights, coupled with the effect of feeling bound to do what is ordered by the office which actually pays him money benefits, leads the worker into a too great complaisance, and puts the medical referees in a position of too much power.

I think we should demand: (i) That medical referees do not treat cases; (ii) that a copy of the part of the amended *Workers' Compensation Act* which makes clear the patient's right to be a free agent in choice of treatment, be displayed in every insurance company's offices; (iii) that before referring any case to a consultant, the medical referee shall get in touch with the practitioner who has had previous care of the case and allow him to guide the patient in his choice of a consultant, if the patient has no expressed choice.

Yours, etc.,

"ORTHOPÆDE."

July 21, 1930.

DIATHERMY OF TONSILS.

SIR: Dr. Culpin suggests that the surgical inefficients have resorted to diathermy. Complete enucleation by dissection is the easiest job I know for a specialist. During the last three years I have seen many cases operated upon by other specialists and the results were uniformly excellent as regards removal of tonsils.

Diathermy is so absolutely safe. It saves time, expense and discomfort for the patients. It is a method of more universal application and more easy for a general practitioner to learn. Despite our critics the method is rapidly gaining ground.

I have operated upon more doctors during the past three years than in the previous thirty-seven of my professional career. I have seen some horrible throats amongst my medical brethren and if they shrink from the possibilities of surgical removal and prefer the dangers and disabilities of focal sepsis, there must surely be something in our contention that diathermy is safer and less painful.

Recently there was death from inhalation of blood at one of our large hospitals and in another case the carotid was ligatured. I had a case lately where a doctor's wife suffered from delayed cocaine effects, but that is the only untoward incident that has occurred.

Diathermy is the only method to use in infected lingual tonsils and they are by no means rare if you take care to look for them.

Previously I have said that I frequently leave some tonsil tissue in adults. I have recently had one of such cases return for further treatment.

Yours, etc.,

W. KENT HUGHES.

22, Collins Street,
Melbourne.
July 25, 1930.

VISIT OF PROFESSOR J. T. WILSON.

GRADUATES are reminded that a conversazione will be held at the Medical School, University of Sydney, on Friday, August 29, 1930, in connexion with the visit of Professor J. T. Wilson. Those intending to be present are asked to communicate with the Honorary Secretary, Dr. J. G. Hunter, British Medical Association House, 135, Macquarie Street, Sydney.

Books Received.

HYPERTENSION AND NEPHRITIS, by Arthur M. Fishbe M.D.; 1930. London: Baillière, Tindall and Cox. R 8vo., pp. 582, illustrated with 33 engravings and coloured plate. Price: 30s. net.

THE SEX FACTOR IN MARRIAGE, by Helena Wright, B.S., with an introduction by A. Herbert Gray, M.A., 1930. London: Noel Douglas. Crown 4to., pp. 100. 3s. 6d. net.

best when he left the management in the hands of his wife. No higher testimony to his life work could be desired than the fact that over eight hundred letters were received by his family within a few days of his death. It is a privilege to the writer to add his word from the memories of forty-six years.

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References.

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SIR: I wish to reply to Dr. Ralph Worrall's criticism of two points in my recent paper.

In regard to (i), treatment of cancer of the cervix, I would agree with Dr. Worrall to the extent of changing the word "most" to "many" and would admit that my outlook perhaps is somewhat clouded through having seen at various clinics only those patients who present themselves for examination on account of some complication which has arisen as a direct result of the operation. Those who have remained well, I have not seen at these clinics. Had I Dr. Worrall's surgical experience, perhaps I would feel as he does, that the sentence is a misstatement.

Dr. Worrall states that "radium cannot show anything like Bonney's 50% of permanent cures following operation." But he does not state whether this percentage is the "absolute cure rate" or the "cure rate" of operable cases. Statistics are unsatisfactory, but I can quote the following to show my authority for disagreement: The "absolute cure rate" in extended operations is given as 19·1%, this figure being the average from twenty published tables. The "absolute cure rate" with radium and X rays is given as 16·3%, this figure being the average from seventeen published tables. The "cure rate" of operable cases by operation is given as 35·6% and the "cure rate" of operable cases by radium and X rays is given as 34·9%, both of these figures being given from the same tables.

Dr. Worrall also states that if patients would apply for treatment at an early stage, the mortality should not be higher than 8%. If the same thing held and the case were treated by radiological means, the primary mortality would be nil and the cure rate would at least equal that of surgery, inasmuch as the glandular involvement, the curing of which is the main radiological problem at the moment, would be small.

In regard to (ii), excessive uterine hæmorrhage, Dr. Worrall appears to associate all such patients with chronic infection of the uterus and appendages. I agree that a percentage are covered by this description, but recent histological work has shown that, apart from tubal inflammation, such chronic inflammatory conditions are rare.

Dr. Worrall states that radium leaves untouched the septic focus in the cervix and does not exclude the danger of cancer. As I see it, radium cures the cervicitis, when present, and acts as a prophylactic in preventing the occurrence of cancer.

In regard to Dr. Worrall's statement that radium acts by atrophying the ovaries, I have not yet found proof that this is so and some authorities hold that its action is solely on the uterus.

A horrible picture is drawn by Dr. Worrall of the results of radium treatment, especially when pelvic inflammation is present. But this picture should never be seen, for radium is contraindicated in the presence of pelvic inflammatory conditions.

In conclusion, finality as between radium and surgery has not been reached and for reasons already given radium seems to me a much more useful therapeutic agent than Dr. Worrall would allow.

Yours, etc.,

KENNETH WILSON.

Wickham Terrace,
Brisbane.
July 17, 1930.

WORKERS' COMPENSATION INSURANCE PRACTICE.

SIR: I wish to record the following experience, as an example of unfair tactics on the part of one of the leading Workers' Compensation insurance companies.

In May this year a suburban practitioner referred an injured worker to me, as a consultant, for opinion and further treatment. My opinion was given and treatment outlined which was estimated to extend over a period of six weeks or more under my weekly supervision.

I saw nothing more of the patient. Two months later the practitioner met me by chance and inquired how the patient was getting on, as he had not seen him and presumed he was attending regularly at my rooms. He was surprised when I told him how matters stood. I then wrote to the man and he came to see me. What had happened was that he had taken my report to the medical referee of the insurance company, who had poo-poo-ed the line of treatment suggested by me, and ordered him to embark on an entirely new line, which by the way had involved the eradication of twenty-four apparently good teeth to cure his backache. When the patient demurred against the change, he was told that: "When you are with us you must do as we wish," and as he put it, "I thought that as they were paying my maintenance I had better let them have their own way." That his lesion was still as far from recovery as it had been two months previously gives point to the story, though it is not relevant to the issue.

This is not by any means the first experience of the same nature I have had, but my previous protests made directly to the medical referee have been in vain. I write this with the idea that if others have had similar experiences, surely some action can be taken to counteract this violation of both the written and unwritten laws. The plain fact is that injured persons and very often their medical attendants do not know that the patient has absolute right to seek and receive medical treatment where he likes. This ignorance of his legal rights, coupled with the effect of feeling bound to do what is ordered by the office which actually pays him money benefits, leads the worker into a too great complaisance, and puts the medical referees in a position of too much power.

I think we should demand: (i) That medical referees do not treat cases; (ii) that a copy of the part of the amended *Workers' Compensation Act* which makes clear the patient's right to be a free agent in choice of treatment, be displayed in every insurance company's offices; (iii) that before referring any case to a consultant, the medical referee shall get in touch with the practitioner who has had previous care of the case and allow him to guide the patient in his choice of a consultant, if the patient has no expressed choice.

Yours, etc.,

"ORTHOPÆDE."

July 21, 1930.

DIATHERMY OF TONSILS.

SIR: Dr. Culpin suggests that the surgical inefficients have resorted to diathermy. Complete enucleation by dissection is the easiest job I know for a specialist. During the last three years I have seen many cases operated upon by other specialists and the results were uniformly excellent as regards removal of tonsils.

Diathermy is so absolutely safe. It saves time, expense and discomfort for the patients. It is a method of more universal application and more easy for a general practitioner to learn. Despite our critics the method is rapidly gaining ground.

I have operated upon more doctors during the past three years than in the previous thirty-seven of my professional career. I have seen some horrible throats amongst my medical brethren and if they shrink from the possibilities of surgical removal and prefer the dangers and disabilities of focal sepsis, there must surely be something in our contention that diathermy is safer and less painful.

Recently there was death from inhalation of blood at one of our large hospitals and in another case the carotid was ligatured. I had a case lately where a doctor's wife suffered from delayed cocaine effects, but that is the only untoward incident that has occurred.

Diathermy is the only method to use in infected lingual tonsils and they are by no means rare if you take care to look for them.

Previously I have said that I frequently leave some tonsil tissue in adults. I have recently had one of such cases return for further treatment.

Yours, etc.,

W. KENT HUGHES.

22, Collins Street,
Melbourne.
July 25, 1930.

VISIT OF PROFESSOR J. T. WILSON.

GRADUATES are reminded that a conversazione will be held at the Medical School, University of Sydney, on Friday, August 29, 1930, in connexion with the visit of Professor J. T. Wilson. Those intending to be present are asked to communicate with the Honorary Secretary, Dr. J. G. Hunter, British Medical Association House, 135, Macquarie Street, Sydney.

Books Received.

HYPERTENSION AND NEPHRITIS, by Arthur M. Fishberg, M.D.; 1930. London: Baillière, Tindall and Cox. Royal 8vo., pp. 582, illustrated with 33 engravings and one coloured plate. Price: 30s. net.

THE SEX FACTOR IN MARRIAGE, by Helena Wright, M.B., B.S., with an introduction by A. Herbert Gray, M.A., D.D.; 1930. London: Noel Douglas. Crown 4to., pp. 100. Price: 3s. 6d. net.

ULTRA-VIOLET RADIATIONS AND THEIR USES, by Robert Aitken, M.D., F.R.C.P.E., with a foreword by Sir Norman Walker; 1930. Edinburgh: Oliver and Boyd. Crown 8vo., pp. 224, with fifteen illustrations. Price: 10s. 6d. net.

CLINICAL BIO-CHEMISTRY, by Ivan Maxwell, M.D., B.S., M.Sc., B.Agr.Sc.; Second Edition, 1930. Melbourne: W. Ramsay. Demy 8vo., pp. 270.

TAYLOR'S PRACTICE OF MEDICINE, by E. P. Poulton, M.A., M.D., F.R.C.P., with the assistance of C. Putnam Symonds, M.A., M.D., F.R.C.P., and H. W. Barber, M.A., M.B., F.R.C.P., and R. D. Gillespie, M.D., M.R.C.P., D.P.M.; Fourteenth Edition, 1930; London: J. & A. Churchill. Royal 8vo., pp. 1090, with 64 plates (twelve coloured) and 103 text-figures. Price: 25s. net.

PIONEERS OF PUBLIC HEALTH: THE STORY OF SOME BENEFACTORS OF THE HUMAN RACE, by M. E. M. Walker, with a foreword by Sir Humphry Rolleston; 1930. Edinburgh: Oliver and Boyd. Royal 8vo., pp. 288, with illustrations. Price: 12s. 6d. net.

ANNALS OF ROENTGENOLOGY: A SERIES OF MONOGRAPHIC ATLASES, Edited by James T. Case, M.D.; Volume XI: The Chest, by L. R. Sante, M.D., F.A.C.P.; 1930. New York: Paul B. Hoeber, Inc. Demy 4to., pp. 588, with three hundred and seventy-six Roentgen-ray studies and one hundred and sixty-three clinical illustrations. Price: $20.00 net.

A SYSTEM OF BACTERIOLOGY IN RELATION TO MEDICINE (Privy Council, Medical Research Council); Volume I, 1930. London: His Majesty's Stationery Office. Crown 4to., pp. 374. Price: 21s. net.

RECENT ADVANCES IN DISEASES OF CHILDREN, by Wilfred J. Pearson, D.S.O., M.C., D.M., F.R.C.P., and W. G. Wyllie, M.D., M.R.C.P.; Second Edition, 1930. London: J. & A. Churchill. Demy 8vo., pp. 558, with 20 plates and 34 text-figures. Price: 15s. net.

HANDBOOK OF THERAPEUTICS, by David Campbell, M.C., M.A., B.Sc., M.D.; 1930. Edinburgh: E. & S. Livingstone. Crown 8vo., pp. 430, with illustrations. Price: 12s. 6d. net.

Diary for the Month.

AUG. 19.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
AUG. 22.—Queensland Branch, B.M.A.: Council.
AUG. 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.
AUG. 27.—Victorian Branch, B.M.A.: Council.
AUG. 28.—New South Wales Branch, B.M.A.: Branch.
AUG. 28.—South Australian Branch, B.M.A.: Branch.
SEPT. 2.—New South Wales Branch, B.M.A.: Organization and Science Committee.
SEPT. 2.—New South Wales Branch, B.M.A.: Post-Graduate Work Committee.
SEPT. 3.—Victorian Branch, B.M.A.: Branch.
SEPT. 4.—South Australian Branch, B.M.A.: Council.
SEPT. 5.—Queensland Branch, B.M.A.: Branch.
SEPT. 9.—New South Wales Branch, B.M.A.: Ethics Committee.
SEPT. 10.—New South Wales Branch, B.M.A.: Last day for examination of two candidates for election to Federal Committee.
SEPT. 11.—New South Wales Branch, B.M.A.: Clinical Meeting.
SEPT. 11.—Victorian Branch, B.M.A.: Council.
SEPT. 11.—Queensland Branch, B.M.A.: Surgical Section.
SEPT. 12.—Queensland Branch, B.M.A.: Council.
SEPT. 16.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

Medical Appointments.

Professor H. R. Dew (B.M.A.), of the University of Sydney, has been appointed a Hunterian Professor of the Royal College of Surgeons of England for the ensuing year. It was announced that in this capacity he would deliver a lecture on hydatid disease before the College in July, 1930.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes*, sought, etc., see "Advertiser," page xiv.

AUSTIN HOSPITAL FOR CHRONIC DISEASES, HEIDELBERG, VICTORIA: Resident Medical Superintendent.
HOBART PUBLIC HOSPITAL, HOBART, TASMANIA: Radiographer.
ROYAL PRINCE ALFRED HOSPITAL, SYDNEY, NEW SOUTH WALES: Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Mount Isa Hospital. Boonah Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

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